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ARISTOTLE

THE CATEGORIES
ON INTERPRETATION
PRIOR ANALYTICS

ARISTOTLE

THE CATEGORIES
ON INTERPRETATION

BY

HAROLD P. COOK, M.A.

FORMERLY LECTURER IN PHILOSOPHY AND CLASSICS
IN ARMSTRONG COLLEGE, UNIVERSITY OF DURHAM

PRIOR ANALYTICS

BY

HUGH TREDENNICK, M.A.

UNIVERSITY READER IN CLASSICS AND HEAD
OF THE DEPARTMENT OF CLASSICS AT QUEEN
MARY COLLEGE IN THE UNIVERSITY OF LONDON

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PREFACE

With an eye to the English reader, who knows, perhaps, little of logic and less in that case of Aristotle's, I have tried in translating these texts to bring out the philosopher's meaning as clearly as was in my power. How far I have succeeded in doing so, provided I interpret it rightly, the reader alone can determine. I cannot, in consequence, pretend that I literally translate the Greek, where it seemed that a literal translation would fail to achieve this main purpose. Some scholars may possibly object that at times I paraphrase Aristotle. I can in that case only plead that a more or less intelligible paraphrase *does* convey something to the reader, unlike strict adherence to the letter. Moreover, a literal translation might often repel English readers and read like some alien jargon, as well as in all probability demanding rather copious notes, which are foreign from the scope of this series.

The Greek text here printed is Bekker's, except for some slight deviations that are noted at the foot of the page.

The short introduction that follows was submitted to the Provost of Oriel. I have to thank my friend and former tutor, Lt.-Col. A. S. L. Farquharson, for help and advice on certain points in regard to the meaning of the texts.

H. P. C.

Cambridge, 1934

ARISTOTLE
THE CATEGORIES

A 2

INTRODUCTION

What is the subject of the *Categories* ? In ordinary usage κατηγορία, rendered in English as 'category,' meant nothing more than 'a predicate.' This meaning it seems highly probable that it retains in this text. The ten categories, then, are ten predicates. What sort of predicates, however, and predicates also of what ? Let us first raise another point here. If we ask how Aristotle came by them, the critics are not in agreement. The following seems, on the whole, the most plausible view of the matter. 'Aristotle,' says Theodor Gomperz, 'imagines a man standing before him, say in the Lyceum, and passes in successive review the questions which may be put and answered about him. All the predicates which can be attached to that subject fall under one or other of the ten heads, from the supreme question : What is the object here perceived ? down to such a subordinate question, dealing with mere externalities, as : What has he on ? What equipment or accoutrements, *e.g.* shoes or weapons ? Other questions are concerned with his qualities and his size (white, instructed in grammar, so many feet tall) ; under the head of relation (Related to what) come answers in which a term such as Greater or Less, Handsomer or Uglier, implies a reference to an object or objects of comparison. The "When" is explained by a

Yesterday or To-morrow, the Doing and Suffering by the sentences: "He is cutting or burning," "He is being cut or burnt." The enumeration is intended to comprise the maximum of predicates which can be assigned to any thing or being. A maximum, be it observed; for it can hardly be by chance that the full number is found in only two passages of the work, while the two which are at once the most special and the least important, those relating to Having, or possession, and to Lying, or attitude, are in every other case passed over without mention. And indeed, what sense could there be in speaking of the possessions of a stone or a piece of iron, or of the attitude of a sphere or a cube? We further observe that several others of the categories are often lumped together under the one name of "Affections," while others are collectively designated "Motions."'[a] Grote took a similar view. 'Now what is remarkable,' he wrote, 'about the ninth and tenth Categories is, that individual persons or animals are the only Subjects respecting whom they are ever predicated, and are at the same time Subjects respecting whom they are constantly (or at least frequently) predicated. An individual person is habitually clothed in some particular way in all or part of his body; he (and perhaps his horse also) are the only Subjects that are ever so clothed. Moreover animals are the only Subjects, and among them man is the principal Subject, whose changes of posture are frequent, various, determined by internal impulses, and at the same time interesting to others to know. Hence we may infer that when Aristotle lays down the Ten Categories, as *Summa Genera* for all predications which can be made about any given Subject, the Subject which he has wholly, or at least principally, in his mind is an individual Man. We understand, then, how it is that he declares *Habere* and *Jacere* to be so plain as to need no further explanation. What is a man's posture? What is his clothing or equipment? are questions understood by every one.' [a]

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[a] *Greek Thinkers* (Eng. tr.), vol. iv. p. 39. 'A maximum,' too, for a man, for a man might have no clothing on!

If the views thus expressed are correct (and they seem to admit of no doubt) in regard to the source of the doctrine, we can draw, I think, certain conclusions respecting the nature of the categories, as they appear in this text, as distinct from other texts of Aristotle, and, at least, in their primary significance. They constitute the most general predicates assignable to one single subject. That subject can only be either an individual man or an animal. Of any other subject whatever not all of them are possible predicates. They constitute, therefore, 'a maximum,' as Theodor Gomperz well puts it. To certain other namable entities a number may, doubtless, belong; and, moreover, on a secondary view, at least one may belong to all others. We may thus describe everything existing as a substance or quantity or quality or refer it to one of the others.

This latter point brings us, I think, to a common explanation of the doctrine. Dr. Ross, for example, considers that 'the categories are a list of the widest predicates which are predicable essentially of the various namable entities, *i.e.*, which tell us what kinds of entity at bottom they are.' [b] If I understand this statement correctly, this means that the ultimate answer to the question what is red is ' a quality,' the ultimate answer to the question what space is or time is ' a quantity.' On that view each namable entity falls under only one category, having one only for predicate. And surely one category only can tell us what a thing is ' at bottom.' Now, a careful inspection of the text shows, I think, that this view is correct. Aristotle, in particular, of quantity enumerates several examples, such as time, space, speech, lines, solids, numbers. And if you were to ask what these are, then the ultimate answer to the question is ' quantities discrete or continuous.' Moreover, he expressly reminds us that only some things, strictly speaking, belong to the category of quantity. This implies that all namable things can be classed under one or another. And the fact that he admits the possibility of a thing's falling under two categories scarcely affects the main point. And this view is consistent with our statement that one of the categories, at least, will belong to each namable entity.

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[a] *Aristotle* (ed. 2, 1880), p. 79.

[b] *Aristotle*, p. 23.

These contentions, I think, will hold good. Not, however, of the classification in its earliest form and significance. For nothing, indeed, in that case appears clearer, at least to my mind, than that *all* of the ten were envisaged as the predicates of *one single* subject. This is not to deny that the doctrine has additional aspects or meanings and that it might come to be made to serve purposes other than the primal and, possibly, far more important.

So, again, we may properly argue that one subject of our text is the meanings of ' uncombined,' ' isolated words ' (or of terms as opposed to propositions) and the things signified by those terms. Thus the doctrine of the categories may serve as a classification of such meanings. It is only again in regard to the primary sense of that doctrine that I do not quite follow Dr. Ross. 'It would seem,' so he says very briefly, 'that in its earliest form the doctrine was a classification of the meanings of, *i.e.* of the *things* meant by, "uncombined words," in other words an inventory of the main aspects of reality, so far at least as language takes account of them.'[a] This seems to me only to be true of the doctrine 'in its earliest form,' if 'reality' is taken as meaning an individual man or an animal.

Then the terms of the text make it evident, as Gomperz has rightly observed, that the doctrine had a definite bearing, in the uses to which it was put, on the theory and practice of disputation—a matter of small interest now. Otherwise we should not find it dealing with the subject of dialectical questions.

That the subject of all the ten categories is an individual man or an animal may be possibly due in some measure not only to actual observation of men in the market-place of Athens but also to Aristotle's holding that the real is the concrete individual. And what better instance could he take with a view to illustrating his lectures than a Plato, a Callias, a Socrates, or (being possessed of some humour) some member of his logical classes?

This view presupposes, of course, that the doctrine derives from Aristotle. Some scholars deny this or doubt it, supposing he found it ready-made and took it over complete from the Academy. Certain points may lend colour to this theory, among them the fact we have noticed, that some of the categories only appear to possess real importance or even come in for much notice. Any positive evidence in its favour it is difficult, however, to adduce. And the writings of Plato himself do not seem to lend any support to it.[a]

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[a] *Aristotle*, p. 23.

One objection to regarding the categories as predicates calls for brief notice. It is true, the first category is substance and so-called ' first substance ' individual, and what is individual can never be, properly speaking, a predicate. But, if we ask *what* Plato is, then the answer we shall give in the long run as being the broadest about him is that he is ' a primary substance,' a concrete and individual man. So in that sense ' first substance ' is a predicate.

The text, *On Interpretation*, does not require much comment here. It was seemingly so called since language was regarded as interpreting thought. If we say that the *Categories* for subject has ' isolated,' ' uncombined terms,' then this text has propositions, their theory, analysis and so on for subject and is specially concerned with developing the possible oppositions between them. The distinction between ' true ' and ' false ' also naturally finds a place here. Propositions are called ' true ' and ' false,' a distinction without any meaning as applied to mere ' uncombined terms.' Aristotle assumes here that truth is a kind of correspondence with reality. Concepts are ' likenesses ' of things. Propositions combine or separate them. They are true, when the things represented are similarly combined or separated ; they are false in the contrary cases. Apart from what Aristotle says or implies of the concepts themselves, this is open to all the objections that are valid against Locke and others. The reader may compare this from Locke: 'Truth, then, seems to me, in the proper import of the word, to signify nothing but *the joining or separating of Signs, as the Things signified by them do agree or disagree one with another.* The joining or separating of signs here meant, is what by another name we call *proposition.* So that truth properly belongs only to propositions: whereof there are two sorts, viz. mental and verbal; as there are two sorts of signs commonly made use of, viz. ideas and words.'*

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[a] Failing positive evidence to the contrary, I take the traditional view that the first nine chapters of this text are the genuine work of Aristotle.

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* *An Essay concerning Human Understanding*, Bk. iv. c. 5.

THE CATEGORIES

Summary of the Principal Themes

Ch. 1. The meaning of univocal, equivocal and derivative terms.

Ch. 2. Expressions are simple or complex.
Things are (1) asserted of a subject, (2) present in a subject, (3) both (1) and (2) or (4) neither (1) nor (2).

Ch. 3. Predicates of the predicate are predicable also of the subject.

Ch. 4. The categories stated in outline.

Ch. 5. Of Substance.
Primary and secondary substance defined.
What is not primary substance is either asserted of or present in a primary substance.
If primary substances did not exist, neither would anything else.
Of secondary substances species more truly substance than genus.
All species, not being genera, are substance in the same degree; so are all primary substances.
No secondary substance other than genus and species.
Primary substance related to secondary substance and all other predicates as secondary substance to all other predicates.

Neither primary nor secondary substances present in a subject.
Primary substance individual, secondary substance a qualification of the individual.
Substances have no contraries.
Substances never admit of degrees.
The characteristic peculiar to substance is that contrary qualities are predicable of it.

Ch. 6. Of Quantity.
Quantity discrete or continuous.
The parts of some quantities have relative positions, while the parts of others have not.
Quantitative terms may be used of things other than quantity.
'Great,' 'small' and similar terms not quantitative but relative.
Quantities never admit of degrees.
The characteristic peculiar to quantity is that we predicate 'equal' and 'unequal' of it.

Ch. 7. Of Relation.
Preliminary definition.
Some relatives have contraries.
Some relatives admit of degrees.
Every relative has a correlative.
The relative must have its proper name; only so is the correlative evident. Necessity in certain cases for coining new names for the purpose.
Relatives usually come into being together. Exceptions in the case of perception and knowledge.
Primary substance never relative, neither any part of such substance.
Corrected definition of relatives.

Impossible to know that a thing is relative, unless its correlative is known.

Ch. 8. Of Quality.
Qualities defined.
Their kinds: (1) habits and dispositions, (2) capacities, (3) affective qualities and affections, (4) shape, figure and so on.
Most qualities have contraries.
If one of two contraries is a quality, so is the other.
Most qualities admit of degrees.
The characteristic peculiar to quality is that we predicate 'like' and 'unlike' in reference to it.

Ch. 9. Of the remaining categories.

Ch. 10. Of the four classes of opposites: (1) correlatives, (2) contraries, (3) positives and privatives, (4) affirmation and negation.

Ch. 11. Further discussion of contraries with special relation to good and evil.

Ch. 12. The five senses of 'prior.'

Ch. 13. The three senses of 'simultaneous.'

Ch. 14. The six kinds of motion.

Ch. 15. The various meanings of 'to have.'

ΑΡΙΣΤΟΤΕΛΟΥΣ
ΚΑΤΗΓΟΡΙΑΙ

1 a I. Ὁμώνυμα λέγεται ὧν ὄνομα μόνον κοινόν, ὁ
δὲ κατὰ τοὔνομα λόγος τῆς οὐσίας ἕτερος, οἷον
ζῷον ὅ τε ἄνθρωπος καὶ τὸ γεγραμμένον. τούτων
γὰρ ὄνομα μόνον κοινόν, ὁ δὲ κατὰ τοὔνομα λόγος
τῆς οὐσίας ἕτερος· ἂν γάρ τις ἀποδιδῷ τί ἐστιν
5 αὐτῶν ἑκατέρῳ τὸ ζῴῳ εἶναι, ἴδιον ἑκατέρου λόγον
ἀποδώσει. συνώνυμα δὲ λέγεται ὧν τό τε ὄνομα
κοινὸν καὶ ὁ κατὰ τοὔνομα λόγος τῆς οὐσίας ὁ
αὐτός, οἷον ζῷον ὅ τε ἄνθρωπος καὶ ὁ βοῦς. ὁ
γὰρ ἄνθρωπος καὶ ὁ βοῦς κοινῷ ὀνόματι προσαγορεύεται
ζῷον, καὶ ὁ λόγος δὲ τῆς οὐσίας ὁ
10 αὐτός· ἐὰν γὰρ ἀποδιδῷ τις τὸν ἑκατέρου λόγον,
τί ἐστιν αὐτῶν ἑκατέρῳ τὸ ζῴῳ εἶναι, τὸν αὐτὸν
λόγον ἀποδώσει. παρώνυμα δὲ λέγεται ὅσα ἀπό
τινος διαφέροντα τῇ πτώσει τὴν κατὰ τοὔνομα

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[a] I retain the traditional renderings, 'univocal,' namely, and 'equivocal.' The ordinary reader, I suspect, will be little familiar with the former. He may, if he pleases, substitute such terms as 'ambiguous,' 'unambiguous.' 'Univocal' has the advantage of being a *positive* term.

[b] Ζῷον in Greek had two meanings, that is to say, living

ARISTOTLE'S CATEGORIES

I. Things are equivocally[a] named, when they have the name only in common, the definition (or statement of essence) corresponding with the name being different. For instance, while a man and a portrait can properly both be called 'animals,' these are equivocally named.[b] For they have the name only in common, the definitions (or statements of essence) corresponding with the name being different. For if you are asked to define what the being an animal means in the case of the man and the portrait, you give in either case a definition appropriate to that case alone.

Things are univocally named, when not only they bear the same name but the name means the same in each case—has the same definition corresponding. Thus a man and an ox are called 'animals.' The name is the same in both cases ; so also the statement of essence. For if you are asked what is meant by their both of them being called 'animals,' you give that particular name in both cases the same definition.

Things are 'derivatively' named that derive their own name from some other, that is given a new verbal

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creature, and, secondly, a figure or image in painting, embroidery, sculpture. We have no ambiguous noun. However, we use the word 'living' of portraits to mean 'true to life.'

1 a προσηγορίαν ἔχει, οἷον ἀπὸ τῆς γραμματικῆς ὁ
15 γραμματικὸς καὶ ἀπὸ τῆς ἀνδρείας ὁ ἀνδρεῖος.

II. Τῶν λεγομένων τὰ μὲν κατὰ συμπλοκὴν
λέγεται, τὰ δ' ἄνευ συμπλοκῆς. τὰ μὲν οὖν κατὰ
συμπλοκὴν οἷον ἄνθρωπος τρέχει, ἄνθρωπος νικᾷ·
τὰ δ' ἄνευ συμπλοκῆς οἷον ἄνθρωπος, βοῦς, τρέχει,
νικᾷ.

20 Τῶν ὄντων τὰ μὲν καθ' ὑποκειμένου τινὸς
λέγεται, ἐν ὑποκειμένῳ δὲ οὐδενί ἐστιν, οἷον
ἄνθρωπος καθ' ὑποκειμένου μὲν λέγεται τοῦ τινὸς
ἀνθρώπου, ἐν ὑποκειμένῳ δὲ οὐδενί ἐστι· τὰ δὲ
ἐν ὑποκειμένῳ μέν ἐστι, καθ' ὑποκειμένου δὲ
οὐδενὸς λέγεται (ἐν ὑποκειμένῳ δὲ λέγω, ὃ ἔν τινι
25 μὴ ὡς μέρος ὑπάρχον ἀδύνατον χωρὶς εἶναι τοῦ
ἐν ᾧ ἐστίν), οἷον ἡ τὶς γραμματικὴ ἐν ὑποκειμένῳ
μέν ἐστι τῇ ψυχῇ, καθ' ὑποκειμένου δ' οὐδενὸς
λέγεται, καὶ τὸ τὶ λευκὸν ἐν ὑποκειμένῳ μὲν τῷ
σώματί ἐστιν (ἅπαν γὰρ χρῶμα ἐν σώματι), καθ'
ὑποκειμένου δὲ οὐδενὸς λέγεται· τὰ δὲ καθ' ὑπο-
1 b κειμένου τε λέγεται καὶ ἐν ὑποκειμένῳ ἐστίν, οἷον
ἡ ἐπιστήμη ἐν ὑποκειμένῳ μέν ἐστι τῇ ψυχῇ, καθ'
ὑποκειμένου δὲ λέγεται τῆς γραμματικῆς· τὰ δὲ
οὔτ' ἐν ὑποκειμένῳ ἐστὶν οὔτε καθ' ὑποκειμένου
τινὸς λέγεται, οἷον ὁ τὶς ἄνθρωπος καὶ ὁ τὶς ἵππος·
5 οὐδὲν γὰρ τῶν τοιούτων οὔτε ἐν ὑποκειμένῳ ἐστὶν
οὔτε καθ' ὑποκειμένου λέγεται. ἁπλῶς δὲ τὰ ἄτομα

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[a] 'Courageous man,' 'courage,' in Greek. But the former obscures the real point by consisting of two words in English. By 'a new verbal form' is intended a new termination or inflexion.

form, as, for instance, ‘ grammarian ’ from ‘ grammar,’ from ‘ heroism,’ ‘ hero,’ and so on.[a]

II. We may or we may not combine what we call words, expressions and phrases. Combine them ; you have propositions—for instance, ‘ man runs ’ or ‘ man wins ’—while examples of uncombined forms are ‘ man,’ ‘ ox,’ ‘ runs ’ and ‘ wins ’ and the like.

But as for the things that are *meant*, when we thus speak of uncombined words, you can predicate some of a subject, but they never are present in one. You can predicate ‘ man,’ for example, of this or that man as the subject, but man is not found in a subject. By ‘ in,’ ‘ present,’ ‘ found in a subject ’ I do not mean present or found as its parts are contained in a whole ; I mean that it cannot exist as apart from the subject referred to. And then there is that class of things which are present or found in a subject, although they cannot be asserted of any known subject whatever. A piece of grammatical knowledge is there in the mind as a subject but cannot be predicated of any known subject whatever. Again, a particular whiteness is present or found in a body (all colour implies some such basis as what we intend by ‘ a body ’) but cannot itself be asserted of any known subject whatever. We find there are some things, moreover, not only affirmed of a subject but present also in a subject. Thus knowledge, for instance, while present in this or that mind as a subject, is also asserted of grammar. There is, finally, that class of things which can neither be found in a subject nor yet be asserted of one—this or that man or horse, for example. For nothing of that kind is in or is ever affirmed of a subject. More generally speaking, indeed, we can never affirm of a subject what is in its

1 b καὶ ἓν ἀριθμῷ κατ' οὐδενὸς ὑποκειμένου λέγεται, ἐν ὑποκειμένῳ δὲ ἔνια οὐδὲν κωλύει εἶναι· ἡ γάρ τις γραμματικὴ τῶν ἐν ὑποκειμένῳ ἐστί.[1]

III. Ὅταν ἕτερον καθ' ἑτέρου κατηγορῆται ὡς καθ' ὑποκειμένου, ὅσα κατὰ τοῦ κατηγορουμένου λέγεται, πάντα καὶ κατὰ τοῦ ὑποκειμένου ῥηθήσεται, οἷον ἄνθρωπος κατὰ τοῦ τινὸς ἀνθρώπου κατηγορεῖται, τὸ δὲ ζῷον κατὰ τοῦ ἀνθρώπου· οὐκοῦν καὶ κατὰ τοῦ τινὸς ἀνθρώπου κατηγορηθήσεται τὸ ζῷον· ὁ γάρ τις ἄνθρωπος καὶ ἄνθρωπός ἐστι καὶ ζῷον.

Τῶν ἑτέρων γενῶν[2] καὶ μὴ ὑπ' ἄλληλα τεταγμένων ἕτεραι τῷ εἴδει καὶ αἱ διαφοραί, οἷον ζῴου καὶ ἐπιστήμης· ζῴου μὲν γὰρ διαφοραὶ τό τε πεζὸν καὶ τὸ δίπουν καὶ τὸ πτηνὸν καὶ τὸ ἔνυδρον, ἐπιστήμης δὲ οὐδεμία τούτων· οὐ γὰρ διαφέρει ἐπιστήμη ἐπιστήμης τῷ δίπους εἶναι.

Τῶν δέ γε ὑπ' ἄλληλα γενῶν οὐδὲν κωλύει τὰς αὐτὰς διαφορὰς εἶναι· τὰ γὰρ ἐπάνω τῶν ὑπ' αὐτὰ γενῶν κατηγορεῖται, ὥστε ὅσαι τοῦ κατηγορουμένου διαφοραί εἰσι, τοσαῦται καὶ τοῦ ὑποκειμένου ἔσονται.

IV. Τῶν κατὰ μηδεμίαν συμπλοκὴν λεγομένων ἕκαστον ἤτοι οὐσίαν σημαίνει ἢ ποσὸν ἢ ποιὸν ἢ πρός τι ἢ ποῦ ἢ ποτὲ ἢ κεῖσθαι ἢ ἔχειν ἢ ποιεῖν ἢ

[1] Bekker reads τῶν ἐν ὑποκειμένῳ μέν ἐστι, καθ' ὑποκειμένου δὲ οὐδενὸς λέγεται.

[2] τῶν ἑτερογενῶν B.

---

[a] 'Co-ordinate' is literally in Greek 'not arranged the one under the other.' The differentia added to the genus constitutes what is known as the species. Supposing that

nature individual and also numerically one. Yet in some cases nothing prevents its being *present* or *found in* a subject. Thus a piece of grammatical knowledge is present, as we said, in a mind.

III. A word upon predicates here. When you predicate this thing or that of another thing as of a subject, the predicates then of the predicate will also hold good of the subject. We predicate 'man' of *a* man; so of 'man' do we predicate 'animal.' Therefore, of this or that man we can predicate 'animal' too. For a man is both 'animal' and 'man.'

When genera are co-ordinate and different, differentiae will differ in kind.[a] Take the genera, animal and knowledge. 'Footed,' 'two-footed,' 'winged,' 'aquatic' are among the differentiae of animal. But none will be found to distinguish a particular species of knowledge. No species of knowledge will differ from another in being 'two-footed.'

Where the genera, however, are subordinate, nothing whatever prevents them from having the same differentiae. For we predicate the higher or larger of the smaller or subordinate class. The differentiae, then, of the predicate will also belong to the subject.

IV. Each uncombined word or expression means one of the following things :—what (or Substance), how large (that is, Quantity), what sort of thing (that is, Quality), related to what (or Relation), where (that is, Place), when (or Time), in what attitude (Posture, Position), how circumstanced (State or Condition), how active, what doing (or Action), how passive,

'building' is the genus and 'used for a dwelling' the difference, we then have the species called 'house.'

1 b πάσχειν. ἔστι δὲ οὐσία μὲν ὡς τύπῳ εἰπεῖν οἷον
ἄνθρωπος, ἵππος· ποσὸν δὲ οἷον δίπηχυ, τρίπηχυ·
ποιὸν δὲ οἷον λευκόν, γραμματικόν· πρός τι δὲ
2 a οἷον διπλάσιον, ἥμισυ, μεῖζον· ποῦ δὲ οἷον ἐν
Λυκείῳ, ἐν ἀγορᾷ· ποτὲ δὲ οἷον ἐχθές, πέρυσιν·
κεῖσθαι δὲ οἷον ἀνάκειται, κάθηται· ἔχειν δὲ οἷον
ὑποδέδεται, ὥπλισται· ποιεῖν δὲ οἷον τέμνει, καίει·
πάσχειν δὲ οἷον τέμνεται, καίεται.

Ἕκαστον δὲ τῶν εἰρημένων αὐτὸ μὲν καθ' αὑτὸ
5 ἐν οὐδεμιᾷ καταφάσει λέγεται,[1] τῇ δὲ πρὸς ἄλληλα
τούτων συμπλοκῇ κατάφασις ἢ ἀπόφασις γίνεται.
ἅπασα γὰρ δοκεῖ κατάφασις καὶ ἀπόφασις ἤτοι
ἀληθὴς ἢ ψευδὴς εἶναι· τῶν δὲ κατὰ μηδεμίαν
συμπλοκὴν λεγομένων οὐδὲν οὔτε ἀληθὲς οὔτε
10 ψεῦδός ἐστιν, οἷον ἄνθρωπος, λευκόν, τρέχει, νικᾷ.

V. Οὐσία δέ ἐστιν ἡ κυριώτατά τε καὶ πρώτως
καὶ μάλιστα λεγομένη, ἣ μήτε καθ' ὑποκειμένου
τινὸς λέγεται μήτ' ἐν ὑποκειμένῳ τινί ἐστιν, οἷον
ὁ τὶς ἄνθρωπος ἢ ὁ τὶς ἵππος. δεύτεραι δὲ οὐσίαι
λέγονται, ἐν οἷς εἴδεσιν αἱ πρώτως οὐσίαι λεγόμεναι
15 ὑπάρχουσι, ταῦτά τε καὶ τὰ τῶν εἰδῶν τούτων
γένη, οἷον ὁ τὶς ἄνθρωπος ἐν εἴδει μὲν ὑπάρχει
τῷ ἀνθρώπῳ, γένος δὲ τοῦ εἴδους ἐστὶ τὸ ζῷον·

[1] ἢ ἀποφάσει omitted after λέγεται.

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[a] I give here two versions of each category. The Greek as a rule is more concrete than the customary English translations. The reader may here be referred to Theodor Gomperz, *Greek Thinkers* (translated by G. G. Berry), vol. iv. c. 4.

[b] ' " Asserted of a subject " here refers to the relation of universal to particular, " present in a subject " to that of an attribute to its possessor ' (W. D. Ross, *Aristotle*, p. 23). The distinction is the same as that into essential and

what suffering (Affection).[a] Examples, to speak but in outline, of Substance are 'man' and 'a horse,' of Quantity 'two cubits long,' 'three cubits in length' and the like, of Quality 'white' and 'grammatical.' Terms such as 'half,' 'double,' 'greater' are held to denote a Relation. 'In the market-place,' 'in the Lyceum' and similar phrases mean Place, while Time is intended by phrases like 'yesterday,' 'last year' and so on. 'Is lying' or 'sitting' means Posture, 'is shod' or 'is armed' means a State. 'Cuts' or 'burns,' again, indicates Action, 'is cut' or 'is burnt' an Affection.

Not one of these terms in itself will involve any positive statement. Affirmations, as also denials, can only arise when such terms are combined or united together. Each positive or negative statement must either be true or be false—that, at least, is allowed on all hands—but an uncombined word or expression (for instance, 'man,' 'white,' 'runs' or 'conquers') can neither be true nor be false.

V. Substance in the truest and strictest, the primary sense of that term, is that which is neither asserted of nor can be found in a subject.[b] We take as examples of this a particular man or a horse. But we *do* speak of secondary substances—those within which, being species, the primary or first are included, and those within which, being genera, the species themselves are contained. For instance, a particular man we include in the species called 'man' and the species itself in its turn is included in the genus called

accidental predicates. Aristotle under substance distinguishes, first of all, primary substance, that is to say, the individual (or this or that man, for example), and, secondly, secondary substances, that is, the species and genera in which the individuals are included

2 a δεύτεραι οὖν αὗται λέγονται οὐσίαι, οἷον ὅ τε ἄνθρωπος καὶ τὸ ζῷον.

Φανερὸν δὲ ἐκ τῶν εἰρημένων ὅτι τῶν καθ' ὑποκειμένου λεγομένων ἀναγκαῖον καὶ τοὔνομα καὶ τὸν λόγον κατηγορεῖσθαι τοῦ ὑποκειμένου, οἷον ὁ ἄνθρωπος καθ' ὑποκειμένου λέγεται τοῦ τινὸς ἀνθρώπου, καὶ κατηγορεῖταί γε τοὔνομα· τὸν γὰρ ἄνθρωπον τοῦ τινὸς ἀνθρώπου κατηγορήσεις. καὶ ὁ λόγος δὲ ὁ τοῦ ἀνθρώπου κατὰ τοῦ τινὸς ἀνθρώπου κατηγορηθήσεται· ὁ γάρ τις ἄνθρωπος καὶ ἄνθρωπός ἐστι καὶ ζῷον. ὥστε καὶ τοὔνομα καὶ ὁ λόγος κατὰ τοῦ ὑποκειμένου κατηγορηθήσεται.

Τῶν δ' ἐν ὑποκειμένῳ ὄντων ἐπὶ μὲν τῶν πλείστων οὔτε τοὔνομα οὔθ' ὁ λόγος κατηγορεῖται τοῦ ὑποκειμένου· ἐπ' ἐνίων δὲ τοὔνομα μὲν οὐδὲν κωλύει κατηγορεῖσθαί ποτε τοῦ ὑποκειμένου, τὸν δὲ λόγον ἀδύνατον, οἷον τὸ λευκὸν ἐν ὑποκειμένῳ ὂν τῷ σώματι κατηγορεῖται τοῦ ὑποκειμένου (λευκὸν γὰρ σῶμα λέγεται), ὁ δὲ λόγος ὁ τοῦ λευκοῦ οὐδέποτε κατὰ σώματος κατηγορηθήσεται.

Τὰ δ' ἄλλα πάντα ἤτοι καθ' ὑποκειμένων λέγεται τῶν πρώτων οὐσιῶν ἢ ἐν ὑποκειμέναις αὐταῖς ἐστίν. τοῦτο δὲ φανερὸν ἐκ τῶν καθ' ἕκαστα προχειριζομένων, οἷον τὸ ζῷον κατὰ τοῦ ἀνθρώπου κατηγορεῖται· οὐκοῦν καὶ κατὰ τοῦ τινὸς ἀνθρώπου κατηγορηθήσεται τὸ ζῷον· εἰ γὰρ 2 b κατὰ μηδενὸς τῶν τινῶν ἀνθρώπων, οὐδὲ κατὰ

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[a] Understand by 'the name' here τὸ λευκόν, and not the Greek substantive λευκότης; both of them signified 'whiteness.' So also we use 'white' in English as an

'animal.' These, then, are secondary substances, that is to say, man and animal—otherwise, species and genus.

From what we have said it is plain that the name and definition of the predicates can both be affirmed of the subject. For instance, we predicate 'man' of an individual man as the subject. The name of the species called 'man' is asserted of each individual; you predicate 'man' of *a* man. The definition or meaning of 'man' will apply to *a* man, in like manner, for a man is both man and an animal. The name and definition of the species will thus both apply to the subject.

When we come, on the contrary, to things which are present or found in a subject, we find that their names and definitions we cannot, at least in most cases, affirm or predicate of that subject. Indeed, the definition itself will in no case whatever apply. But in some cases nothing prevents us from using the *name* of the subject. Suppose we take 'white' as an instance. Now 'white' is, no doubt, in a body and thus is affirmed of a body, for a body, of course, is called 'white.' The definition, however, of 'white' —of the colour, that is, we call 'white'—can never be predicated of any such body whatever.[a]

Everything else but first substance is either affirmed of first substance or present in such as its subject. This is evident from particular instances taken by way of examples. We predicate 'animal' of 'man.' So we predicate 'animal' also of any particular man. Were there no individuals existing of whom it could thus be affirmed, it could

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adjective, commonly speaking, but also at times as a noun, when it means 'a white paint' or 'white colour.'

ἀνθρώπου ὅλως. πάλιν τὸ χρῶμα ἐν σώματι· οὐκοῦν καὶ ἐν τινὶ σώματι· εἰ γὰρ μὴ ἐν τινὶ τῶν καθ' ἕκαστα, οὐδὲ ἐν σώματι ὅλως. ὥστε τὰ ἄλλα πάντα ἤτοι καθ' ὑποκειμένων λέγεται τῶν πρώτων οὐσιῶν ἢ ἐν ὑποκειμέναις αὐταῖς ἐστίν. μὴ οὐσῶν οὖν τῶν πρώτων οὐσιῶν ἀδύνατον τῶν ἄλλων τι εἶναι.

Τῶν δὲ δευτέρων οὐσιῶν μᾶλλον οὐσία τὸ εἶδος τοῦ γένους· ἔγγιον γὰρ τῆς πρώτης οὐσίας ἐστίν. ἐὰν γὰρ ἀποδιδῷ τις τὴν πρώτην οὐσίαν τί ἐστι, γνωριμώτερον καὶ οἰκειότερον ἀποδώσει τὸ εἶδος ἀποδιδοὺς ἤπερ τὸ γένος, οἷον τὸν τινὰ ἄνθρωπον ἀποδιδοὺς γνωριμώτερον ἂν ἀποδοίη ἄνθρωπον ἢ ζῷον ἀποδιδούς· τὸ μὲν γὰρ ἴδιον μᾶλλον τοῦ τινὸς ἀνθρώπου, τὸ δὲ κοινότερον. καὶ τὸ τὶ δένδρον ἀποδιδοὺς γνωριμώτερον ἀποδώσει δένδρον ἀποδιδοὺς ἢ φυτόν.

Ἔτι αἱ πρῶται οὐσίαι διὰ τὸ τοῖς ἄλλοις ἅπασιν ὑποκεῖσθαι καὶ πάντα τὰ ἄλλα κατὰ τούτων κατηγορεῖσθαι ἢ ἐν αὐταῖς εἶναι διὰ τοῦτο μάλιστα οὐσίαι λέγονται. ὡς δέ γε αἱ πρῶται οὐσίαι πρὸς τὰ ἄλλα πάντα ἔχουσιν, οὕτω καὶ τὸ εἶδος πρὸς τὸ γένος ἔχει· ὑπόκειται γὰρ τὸ εἶδος τῷ γένει· τὰ μὲν γὰρ γένη κατὰ τῶν εἰδῶν κατηγορεῖται, τὰ δὲ εἴδη κατὰ τῶν γενῶν οὐκ ἀντιστρέφει. ὥστε καὶ ἐκ τούτων τὸ εἶδος τοῦ γένους μᾶλλον οὐσία.

not be affirmed of the species. Colour, again, is in body; so also in this or that body. For were there no bodies existing wherein it could also exist, it could not be in body at all. In fine, then, all things whatsoever, save what we call primary substances, are predicates of primary substances or present in such as their subjects. And were there no primary substance, nought else could so much as exist.

Of secondary substances species is better called substance than genus: it is nearer to primary substance, while genus is more removed from it. Suppose someone asks you 'what is it?' regarding a primary substance. Your answer is both more instructive and also more apt to the subject, provided you mention its species than if you should mention its genus. Take this or that man, for example. You would give a more instructive account, if you stated the species or 'man,' than you would, if you called him 'an animal.' The former belongs the more to him, the latter is somewhat too wide. Or, again, take an individual tree. By mentioning the species or 'tree' you will give a more instructive account than by giving the genus or 'plant.'

Moreover, the primary substances most of all merit that name, since they underlie all other things, which in turn will be either their predicates or present in such as their subjects. But exactly as primary substances stand to all else that exists, so also stands species to genus. Species is related to genus as subject is related to predicate. We predicate genus of species; but never, indeed, can we predicate species of genus conversely. On this further ground we may hold that of secondary substances species is more truly substance than genus.

2b Αὐτῶν δὲ τῶν εἰδῶν ὅσα μή ἐστι γένη, οὐδὲν
μᾶλλον ἕτερον ἑτέρου οὐσία ἐστίν· οὐδὲν γὰρ
οἰκειότερον ἀποδώσεις κατὰ τοῦ τινὸς ἀνθρώπου
25 τὸν ἄνθρωπον ἀποδιδοὺς ἢ κατὰ τοῦ τινὸς ἵππου
τὸν ἵππον. ὡσαύτως δὲ καὶ τῶν πρώτων οὐσιῶν
οὐδὲν μᾶλλον ἕτερον ἑτέρου οὐσία ἐστίν· οὐδὲν
γὰρ μᾶλλον ὁ τὶς ἄνθρωπος οὐσία ἢ ὁ τὶς βοῦς.
30 Εἰκότως δὲ μετὰ τὰς πρώτας οὐσίας μόνα τῶν
ἄλλων τὰ εἴδη καὶ τὰ γένη δεύτεραι οὐσίαι λέγονται·
μόνα γὰρ δηλοῖ τὴν πρώτην οὐσίαν τῶν κατηγορουμένων.
τὸν γάρ τινα ἄνθρωπον ἐὰν ἀποδιδῷ
τις τί ἐστι, τὸ μὲν εἶδος ἢ τὸ γένος ἀποδιδοὺς
οἰκείως ἀποδώσει καὶ γνωριμώτερον ποιήσει ἄνθρωπον
ἢ ζῷον ἀποδιδούς· τῶν δ' ἄλλων ὅ τι ἂν
35 ἀποδιδῷ τις, ἀλλοτρίως ἔσται ἀποδεδωκώς, οἷον
λευκὸν ἢ τρέχει ἢ ὁτιοῦν τῶν τοιούτων ἀποδιδούς.
ὥστε εἰκότως τῶν ἄλλων ταῦτα μόνα οὐσίαι λέγονται.

3a Ἔτι αἱ πρῶται οὐσίαι διὰ τὸ τοῖς ἄλλοις ἅπασιν
ὑποκεῖσθαι κυριώτατα οὐσίαι λέγονται. ὡς δέ γε
αἱ πρῶται οὐσίαι πρὸς τὰ ἄλλα πάντα ἔχουσιν,
οὕτω τὰ εἴδη καὶ τὰ γένη τῶν πρώτων οὐσιῶν πρὸς
τὰ λοιπὰ πάντα ἔχει· κατὰ τούτων γὰρ πάντα τὰ
λοιπὰ κατηγορεῖται. τὸν γάρ τινα ἄνθρωπον ἐρεῖς
5 γραμματικόν· οὐκοῦν καὶ ἄνθρωπον καὶ ζῷον γραμματικὸν
ἐρεῖς. ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων.

Κοινὸν δὲ κατὰ πάσης οὐσίας τὸ μὴ ἐν ὑποκειμένῳ
εἶναι. ἡ μὲν γὰρ πρώτη οὐσία οὔτε ἐν

If we turn to the species themselves, none, unless it is also a genus, is more of a substance than another. No apter description is ‘ man ’ of a concrete or individual man than is ‘ horse ’ of a concrete horse. So also of primary substances—none is more a substance than others. For this or that man, for example, could not well be *more truly* substance than, let us say, this or that ox.

Apart, then, from primary substances, species and genus alone of the things that will then remain over are rightly called secondary substance, for they of all possible predicates alone define primary substance. For only by species or genus can this or that man be defined in a fit or appropriate way ; and we make our definition preciser by stating the species or ‘ man ’ than by stating the genus or ‘ animal.’ Anything else we might state, as, for instance, ‘ he runs ’ or ‘ is white,’ would be foreign from the purpose in hand. So species and genera only are rightly designated as substance, first substances only excepted.

‘ Substance,’ again, strictly speaking, applies to first substances only, because they not only underlie but provide all things else with their subjects. Exactly as primary substance is related to all else whatever, so also are genus and species, in which is included that substance, related to all attributes not included in genus and species. For these are the subjects of such. You may call a man ‘ learned in grammar.’ And, therefore, his species and genus, that is to say, man and animal, you may also call ‘ learned in grammar.’ And this will be so in all cases.

That it never is present in a subject holds good of all substance whatever. For what we call primary

ὑποκειμένῳ ἐστὶν οὔτε καθ' ὑποκειμένου λέγεται· τῶν δὲ δευτέρων οὐσιῶν φανερὸν μὲν καὶ οὕτως ὅτι οὐκ εἰσὶν ἐν ὑποκειμένῳ. ὁ γὰρ ἄνθρωπος καθ' ὑποκειμένου μὲν τοῦ τινὸς ἀνθρώπου λέγεται, ἐν ὑποκειμένῳ δὲ οὐκ ἔστιν· οὐ γὰρ ἐν τῷ τινὶ ἀνθρώπῳ ὁ ἄνθρωπός ἐστιν. ὡσαύτως δὲ καὶ τὸ ζῷον καθ' ὑποκειμένου μὲν λέγεται τοῦ τινὸς ἀνθρώπου, οὐκ ἔστι δὲ τὸ ζῷον ἐν τῷ τινὶ ἀνθρώπῳ. ἔτι δὲ τῶν ἐν ὑποκειμένῳ ὄντων τὸ μὲν ὄνομα οὐδὲν κωλύει κατηγορεῖσθαί ποτε τοῦ ὑποκειμένου, τὸν δὲ λόγον ἀδύνατον. τῶν δὲ δευτέρων οὐσιῶν κατηγορεῖται καὶ ὁ λόγος κατὰ τοῦ ὑποκειμένου καὶ τοὔνομα· τὸν γὰρ τοῦ ἀνθρώπου λόγον κατὰ τοῦ τινὸς ἀνθρώπου κατηγορήσεις, καὶ τὸν τοῦ ζῴου ὡσαύτως. ὥστε οὐκ ἂν εἴη ἡ οὐσία τῶν ἐν ὑποκειμένῳ.

Οὐκ ἴδιον δὲ τοῦτο τῆς οὐσίας, ἀλλὰ καὶ ἡ διαφορὰ τῶν μὴ ἐν ὑποκειμένῳ ἐστίν. τὸ γὰρ πεζὸν καὶ τὸ δίπουν καθ' ὑποκειμένου μὲν λέγεται τοῦ ἀνθρώπου, ἐν ὑποκειμένῳ δὲ οὐκ ἔστιν· οὐ γὰρ ἐν τῷ ἀνθρώπῳ ἐστὶ τὸ δίπουν ἢ τὸ πεζόν. καὶ ὁ λόγος δὲ κατηγορεῖται ὁ τῆς διαφορᾶς, καθ' οὗ ἂν λέγηται ἡ διαφορά, οἷον εἰ τὸ πεζὸν κατὰ τοῦ ἀνθρώπου λέγεται, καὶ ὁ λόγος ὁ τοῦ πεζοῦ κατηγορηθήσεται τοῦ ἀνθρώπου· πεζὸν γάρ ἐστιν ὁ ἄνθρωπος.

Μὴ ταραττέτω δὲ ἡμᾶς τὰ μέρη τῶν οὐσιῶν ὡς ἐν ὑποκειμένοις ὄντα τοῖς ὅλοις, μή ποτε ἀναγκασθῶμεν οὐκ οὐσίας αὐτὰ φάσκειν εἶναι· οὐ γὰρ οὕτω τὰ ἐν ὑποκειμένῳ ἐλέγετο τὰ ὡς μέρη ὑπάρχοντα ἔν τινι.

substance can neither be present in a subject nor yet predicated of one. And as for the secondary substance, the following points, among others, will prove it is not in a subject. We predicate 'man' of a man; 'man,' however, is not *in* a subject. For manhood is not *in* a man. As the species, so also the genus. For 'animal' is also asserted of this or that man in particular but cannot be found present in him. Again, we may notice this point. When a thing can be found in a subject, then nothing prevents us from using its name of the subject in question; not so the definition, however. And yet of a secondary substance both name and definition hold good in the case of the subject as well. The definition of the species (or man) and that of the genus (or animal) are used of an individual man. Therefore, substance is not in a subject.

That they cannot be present in subjects is true not of substances only but holds of differentiae, too. Thus we can of the species called 'man' assert 'going on foot' and 'two-footed.' But these are not found present in it. For neither of these is *in* man. Where, again, you affirm the differentia, you also affirm its definition. Suppose of the species called 'man' you should predicate 'going on foot.' The definition also of that attribute then will apply to that species. For 'man' does, indeed, go on foot.

That the parts of the substances are present or found in the wholes as in subjects is a fact that need hardly disturb us or render us fearful of having to brand all such parts as no substances. Did we not qualify 'present in a subject' by 'not as the parts in a whole'? [a]

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[a] See the definition, 1 a 24.

3 a Ὑπάρχει δὲ ταῖς οὐσίαις καὶ ταῖς διαφοραῖς τὸ
πάντα συνωνύμως ἀπ' αὐτῶν λέγεσθαι. πᾶσαι γὰρ
35 αἱ ἀπ' αὐτῶν κατηγορίαι ἤτοι κατὰ τῶν ἀτόμων
κατηγοροῦνται ἢ κατὰ τῶν εἰδῶν. ἀπὸ μὲν γὰρ
τῆς πρώτης οὐσίας οὐδεμία ἐστὶ κατηγορία· κατ'
οὐδενὸς γὰρ ὑποκειμένου λέγεται· τῶν δὲ δευτέρων
οὐσιῶν τὸ μὲν εἶδος κατὰ τοῦ ἀτόμου κατηγορεῖται,
τὸ δὲ γένος καὶ κατὰ τοῦ εἴδους καὶ κατὰ
3 b τοῦ ἀτόμου. ὡσαύτως δὲ καὶ αἱ διαφοραὶ κατὰ
τῶν εἰδῶν καὶ κατὰ τῶν ἀτόμων κατηγοροῦνται.
καὶ τὸν λόγον δὲ ἐπιδέχονται αἱ πρῶται οὐσίαι
τὸν τῶν εἰδῶν καὶ τὸν τῶν γενῶν, καὶ τὸ εἶδος δὲ
τὸν τοῦ γένους· ὅσα γὰρ κατὰ τοῦ κατηγορουμένου
5 λέγεται, πάντα καὶ κατὰ τοῦ ὑποκειμένου ῥηθήσεται.
ὡσαύτως δὲ καὶ τὸν τῶν διαφορῶν λόγον
ἐπιδέχεται τὰ εἴδη καὶ τὰ ἄτομα. συνώνυμα δέ
γε ἦν ὧν καὶ τοὔνομα κοινὸν καὶ ὁ λόγος ὁ αὐτός,
ὥστε πάντα τὰ ἀπὸ τῶν οὐσιῶν καὶ τὰ ἀπὸ τῶν
διαφορῶν συνωνύμως λέγεται.

10 Πᾶσα δὲ οὐσία δοκεῖ τόδε τι σημαίνειν. ἐπὶ
μὲν οὖν τῶν πρώτων οὐσιῶν ἀναμφισβήτητον καὶ
ἀληθές ἐστιν ὅτι τόδε τι σημαίνει· ἄτομον γὰρ καὶ
ἓν ἀριθμῷ τὸ δηλούμενόν ἐστιν· ἐπὶ δὲ τῶν δευτέρων
οὐσιῶν φαίνεται μὲν ὁμοίως τῷ σχήματι
15 τῆς προσηγορίας τόδε τι σημαίνειν, ὅταν εἴπῃ
ἄνθρωπον ἢ ζῷον, οὐ μὴν ἀληθές γε, ἀλλὰ μᾶλλον
ποιόν τι σημαίνει· οὐ γὰρ ἕν ἐστι τὸ ὑποκείμενον
ὥσπερ ἡ πρώτη οὐσία, ἀλλὰ κατὰ πολλῶν ὁ
ἄνθρωπος λέγεται καὶ τὸ ζῷον. οὐχ ἁπλῶς δὲ
ποιόν τι σημαίνει, ὥσπερ τὸ λευκόν. οὐδὲν γὰρ
20 ἄλλο σημαίνει τὸ λευκὸν ἀλλ' ἢ ποιόν. τὸ δὲ εἶδος

Differentia and substance alike have this characteristic in common, that, wherever we predicate them, we predicate them univocally. For such propositions have always individuals or species for subjects. The primary substance, no doubt, being never predicated of anything, never itself can be predicate of any proposition whatever. Not so with the secondary substance. The species is predicated of all individual examples, the genus of these and the species. And so with differentiae also. Of species and individuals we predicate these in like manner. Both definitions, moreover, or those of the genus and species, apply to the primary substance and that of the genus to the species. For all we affirm of the predicate will also be affirmed of the subject. The definition of each differentia applies in a similar manner to both individuals and species. But, as we have already noticed, univocal is used of such things as not only possess the same name but are also defined the same way. Hence it follows that in all propositions having substance or difference for predicate that predicate is quite unequivocal.

All substance appears individual. And this is indisputably true in the case of the primary substances. What each denotes is a unit. In that of the secondary substances language may make it appear so, as when we say 'animal,' 'man.' This, however, is not really so, for a quality rather is meant. Second substance is not one and single, as, no doubt, the primary is; not of one but of many, indeed, do we predicate 'animal,' 'man.' Species and genus, however, do not merely indicate quality, as 'white' merely indicates quality. Accidents, that is, like 'white,' mean a quality simply and merely. But species

determine

3 b καὶ τὸ γένος περὶ οὐσίαν τὸ ποιὸν ἀφορίζει· ποιὰν
γάρ τινα οὐσίαν σημαίνει. ἐπὶ πλεῖον δὲ τῷ γένει
ἢ τῷ εἴδει τὸν ἀφορισμὸν ποιεῖται· ὁ γὰρ ζῷον
εἰπὼν ἐπὶ πλεῖον περιλαμβάνει ἢ ὁ τὸν ἄνθρωπον.

25 Ὑπάρχει δὲ ταῖς οὐσίαις καὶ τὸ μηδὲν αὐταῖς
ἐναντίον εἶναι. τῇ γὰρ πρώτῃ οὐσίᾳ τί ἂν εἴη
ἐναντίον, οἷον τῷ τινὶ ἀνθρώπῳ ἢ τῷ τινὶ ζῴῳ;
οὐδὲν γάρ ἐστιν ἐναντίον. οὐδέ γε τῷ ἀνθρώπῳ
ἢ τῷ ζῴῳ οὐδέν ἐστιν ἐναντίον. οὐκ ἴδιον δὲ
τοῦτο τῆς οὐσίας, ἀλλὰ καὶ ἐπ' ἄλλων πολλῶν,
οἷον ἐπὶ τοῦ ποσοῦ· τῷ γὰρ διπήχει ἢ τριπήχει
30 οὐδέν ἐστιν ἐναντίον, οὐδέ γε τοῖς δέκα, οὐδὲ τῶν
τοιούτων οὐδενί, εἰ μή τις τὸ πολὺ τῷ ὀλίγῳ φαίη
ἐναντίον εἶναι ἢ τὸ μέγα τῷ μικρῷ. τῶν δὲ
ἀφωρισμένων ποσῶν οὐδὲν οὐδενὶ ἐναντίον ἐστίν.

Δοκεῖ δὲ ἡ οὐσία μὴ ἐπιδέχεσθαι τὸ μᾶλλον καὶ
τὸ ἧττον. λέγω δὲ οὐχ ὅτι οὐσία οὐσίας οὐκ ἔστι
35 μᾶλλον οὐσία καὶ ἧττον οὐσία (τοῦτο μὲν γὰρ
εἴρηται ὅτι ἔστιν), ἀλλ' ὅτι ἑκάστη οὐσία τοῦθ'
ὅπερ ἐστίν, οὐ λέγεται μᾶλλον καὶ ἧττον. οἷον εἰ
ἔστιν αὕτη[1] ἡ οὐσία ἄνθρωπος, οὐκ ἔσται μᾶλλον
καὶ ἧττον ἄνθρωπος, οὔτε αὐτὸς ἑαυτοῦ οὔτε ἕτερος
ἑτέρου· οὐ γάρ ἐστιν ἕτερος ἑτέρου μᾶλλον ἄν-
4 a θρωπος, ὥσπερ τὸ λευκὸν ἕτερον ἑτέρου μᾶλλόν
ἐστι καὶ ἧττον λευκόν, καὶ καλὸν ἕτερον ἑτέρου
μᾶλλον καλὸν καὶ ἧττον λέγεται. καὶ αὐτὸ δὲ
αὑτοῦ μᾶλλον καὶ ἧττον λέγεται, οἷον τὸ σῶμα
λευκὸν ὂν μᾶλλον λευκὸν εἶναι λέγεται νῦν ἢ
5 πρότερον, καὶ θερμὸν ὂν μᾶλλον θερμὸν καὶ ἧττον
λέγεται. ἡ δέ γε οὐσία οὐδὲν μᾶλλον καὶ ἧττον

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[1] αὐτή B.

and genus determine a quality in reference to substance. They tell you *what sort* of a substance. In the case of the genus, however, such determining qualification will cover a much wider field than it does in the case of the species. Say ' animal ' ; you comprehend more than you would, if instead you said ' man.'

Substances never have contraries. How could first substances have them—this man, for example, that animal ? Nothing is contrary to them. And species and genus have none. This particular characteristic belongs not to substance alone. For it holds of a good many things and, among them, for instance, of quantity. ' Two cubits long ' has no contrary ; neither has ' three cubits long ' ; nor has ' ten ' nor yet anything like it, unless, indeed, someone should say ' large ' and ' small,' ' much ' and ' little ' are contraries. Definite quantities, however, can certainly never have contraries.

No substance, it seems, has degrees or admits of a more and a less. I do not mean here that one substance may not be more truly called substance, less truly called substance, than others ; indeed, we have said that it may. But I mean that no substance as such can admit of degrees in itself. For example, the same substance, man, cannot really be more or less man as compared with himself or another. This man is not *more* man than that, as one white thing is more or less white than another white object may be or, again, as one beautiful object has more or less beauty than others. The same quality in the same object may vary at times in degree. For example, a body, if white, is called whiter just now than it was or, if warm, is called more or less warm. But a substance is not more or less of whatever, *qua*

4 a λέγεται· οὐδὲ γὰρ ἄνθρωπος μᾶλλον νῦν ἄνθρωπος
ἢ πρότερον λέγεται, οὐδέ γε τῶν ἄλλων οὐδέν, ὅσα
ἐστὶν οὐσίαι. ὥστε οὐκ ἂν ἐπιδέχοιτο ἡ οὐσία
τὸ μᾶλλον καὶ ἧττον.

10 Μάλιστα δὲ ἴδιον τῆς οὐσίας δοκεῖ εἶναι τὸ
ταὐτὸν καὶ ἓν ἀριθμῷ ὂν τῶν ἐναντίων εἶναι δεκτικόν, οἷον ἐπὶ μὲν τῶν ἄλλων οὐκ ἂν ἔχοι τις τὸ
τοιοῦτο προενεγκεῖν, ὅσα μή εἰσιν οὐσίαι, ὃ ἓν
ἀριθμῷ ὂν τῶν ἐναντίων δεκτικόν ἐστιν, οἷον τὸ
χρῶμα, ὅ ἐστιν ἓν καὶ ταὐτὸν τῷ ἀριθμῷ, οὐκ
15 ἔσται λευκὸν καὶ μέλαν, οὐδ' ἡ αὐτὴ πρᾶξις καὶ
μία τῷ ἀριθμῷ οὐκ ἔσται φαύλη καὶ σπουδαία·
ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων, ὅσα μή εἰσιν
οὐσίαι. ἡ δέ γε οὐσία ἓν καὶ ταὐτὸν ἀριθμῷ ὂν
δεκτικὸν τῶν ἐναντίων ἐστίν, οἷον ὁ τὶς ἄνθρωπος,
20 εἷς καὶ ὁ αὐτὸς ὤν, ὁτὲ μὲν λευκὸς ὁτὲ δὲ μέλας
γίνεται, καὶ θερμὸς καὶ ψυχρός, καὶ φαῦλος καὶ
σπουδαῖος. ἐπὶ δὲ τῶν ἄλλων οὐδενὸς φαίνεται
τὸ τοιοῦτον, εἰ μή τις ἐνίσταιτο τὸν λόγον καὶ
τὴν δόξαν φάσκων τῶν ἐναντίων εἶναι δεκτικά.
ὁ γὰρ αὐτὸς λόγος ἀληθὴς καὶ ψευδὴς εἶναι δοκεῖ,
25 οἷον εἰ ἀληθὴς εἴη ὁ λόγος τὸ καθῆσθαί τινα,
ἀναστάντος αὐτοῦ ὁ αὐτὸς οὗτος λόγος ψευδὴς
ἔσται. ὡσαύτως δὲ καὶ ἐπὶ τῆς δόξης· εἰ γάρ
τις ἀληθῶς δοξάζοι τὸ καθῆσθαί τινα, ἀναστάντος
αὐτοῦ ψευδῶς δοξάσει, τὴν αὐτὴν ἔχων περὶ αὐτοῦ
δόξαν. εἰ δέ τις καὶ τοῦτο παραδέχοιτο, ἀλλὰ τῷ
γε τρόπῳ διαφέρει. τὰ μὲν γὰρ ἐπὶ τῶν οὐσιῶν
30 αὐτὰ μεταβάλλοντα δεκτικὰ τῶν ἐναντίων ἐστί·
ψυχρὸν γὰρ ἐκ θερμοῦ γενόμενον μετέβαλεν (ἠλλοίωται γάρ) καὶ μέλαν ἐκ λευκοῦ καὶ σπουδαῖον

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[a] True at one time and false at another.

substance, it is. For a man is not more of a man than he was at some time in the past. And so of all substances else. Therefore, substance can have no degrees.

But what is most characteristic of substance appears to be this: that, although it remains, notwithstanding, numerically one and the same, it is capable of being the recipient of contrary qualifications. Of things that are other than substance we could hardly adduce an example possessed of this characteristic. For instance, a particular colour, numerically one and the same, can in no wise be both black and white, and an action, if one and the same, can in no wise be both good and bad. So of everything other than substance. But substance, remaining the same, yet admits of such contrary qualities. One and the same individual at one time is white, warm or good, at another time black, cold or bad. This is not so with anything else, though it might be maintained that assertions or opinions admitted of contraries. That is to say, the same statement may appear to be both true and false.[a] 'He sits' may, for instance, be true. If he rises, it then becomes false. And so with opinions as well. One may be of opinion, and truly, that such or such person is sitting. And yet, when that person has risen, that opinion, if held still, is false. Even though we allow this exception, it would differ, in fact, from the rest in its manner of coming about. For whenever a substance admits of such contrary qualifications, it is by a change in itself. It is by a change in itself that a thing that was hot becomes cold (having passed from one state to another) or a thing that was white becomes black or a thing that was good becomes bad.

4 a ἐκ φαύλου. ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων
ἕκαστον αὐτῶν μεταβολὴν δεχόμενον τῶν ἐναντίων
δεκτικόν ἐστιν. ὁ δὲ λόγος καὶ ἡ δόξα αὐτὰ
35 μὲν ἀκίνητα πάντῃ πάντως διαμένει, τοῦ δὲ πράγματος
κινουμένου τὸ ἐναντίον περὶ αὐτὰ γίνεται·
ὁ μὲν γὰρ λόγος διαμένει ὁ αὐτὸς τὸ καθῆσθαί
4 b τινα, τοῦ δὲ πράγματος κινηθέντος ὁτὲ μὲν ἀληθὴς
ὁτὲ δὲ ψευδὴς λέγεται. ὡσαύτως δὲ καὶ ἐπὶ τῆς
δόξης. ὥστε τῷ τρόπῳ γε ἴδιον ἂν εἴη τῆς οὐσίας
τὸ κατὰ τὴν ἑαυτῆς μεταβολὴν δεκτικὴν τῶν
ἐναντίων εἶναι.

Εἰ δή[1] τις καὶ ταῦτα παραδέχοιτο, τὸν λόγον καὶ
5 τὴν δόξαν δεκτικὰ τῶν ἐναντίων εἶναι, οὐκ ἔστιν
ἀληθὲς τοῦτο. ὁ γὰρ λόγος καὶ ἡ δόξα οὐ τῷ
αὐτὰ δέχεσθαί τι τῶν ἐναντίων εἶναι δεκτικὰ
λέγεται, ἀλλὰ τῷ περὶ ἕτερόν τι τὸ πάθος γεγενῆσθαι.
τῷ γὰρ τὸ πρᾶγμα εἶναι ἢ μὴ εἶναι
τούτῳ καὶ ὁ λόγος ἀληθὴς ἢ ψευδὴς εἶναι λέγεται,
10 οὐ τῷ αὐτὸς δεκτικὸς εἶναι τῶν ἐναντίων. ἁπλῶς
γὰρ οὐθὲν ὑπ᾽ οὐδενὸς οὔτε ὁ λόγος κινεῖται οὔτε
ἡ δόξα, ὥστε οὐκ ἂν εἴη δεκτικὰ τῶν ἐναντίων
μηδενὸς ἐν αὐτοῖς γινομένου πάθους. ἡ δέ γε
οὐσία τῷ αὐτὴ τὰ ἐναντία δέχεσθαι, τούτῳ δεκτικὴ
τῶν ἐναντίων εἶναι λέγεται· νόσον γὰρ καὶ ὑγίειαν
15 δέχεται, καὶ λευκότητα καὶ μελανίαν· καὶ ἕκαστον
τῶν τοιούτων αὐτὴ δεχομένη τῶν ἐναντίων εἶναι
δεκτικὴ λέγεται. ὥστε ἴδιον ἂν οὐσίας εἴη τὸ
ταὐτὸν καὶ ἓν ἀριθμῷ ὂν δεκτικὸν εἶναι τῶν ἐναντίων
κατὰ τὴν ἑαυτῆς μεταβολήν. περὶ μὲν οὖν
οὐσίας τοσαῦτα εἰρήσθω.

20 VI. Τοῦ δὲ ποσοῦ τὸ μέν ἐστι διωρισμένον, τὸ

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[1] δέ B.

And so, too, in all other cases where substance admits of such qualities. The statement or opinion, however, remains in itself quite unaltered in any and every respect. If it takes on the contrary quality, being now true and now false, then the facts of the case will have changed. For the statement 'he sits' is unchanged; but according to existing conditions we call it now true and now false. As with statements, so, too, with opinions. In its manner, then, of coming about it is really peculiar to substance to admit of the contrary qualities—to wit, by a change in itself.

If a man, then, should make an exception in favour of opinions and statements, maintaining that these admit also of contrary qualifications, his view would, in truth, be unsound. If opinions and statements are said to admit of such qualifications, the fact is that not they themselves but that *something else* undergoes change. For it is by the facts of the case, by their being or not being so, that a statement is called true or false. It is not that the statement itself can admit of such contrary qualities. For nothing, in one word, can alter the nature of opinions and statements, and, seeing no change occurs in them, they cannot admit of such contraries. But substance admits of such contraries by having received them itself: it alternately takes to itself health, disease, whiteness, blackness, the like. By receiving them into itself is it said to admit of such contraries. So, to conclude, we may call this above all distinctive of substance, that, remaining still one and the same, it may yet through a change in itself receive contrary qualifications. Let so much on substance suffice.

VI. To quantity let us turn next. This is either

4 b δὲ συνεχές, καὶ τὸ μὲν ἐκ θέσιν ἐχόντων πρὸς ἄλληλα τῶν ἐν αὐτοῖς μορίων συνέστηκε, τὸ δὲ οὐκ ἐξ ἐχόντων θέσιν. ἔστι δὲ διωρισμένον μὲν οἷον ἀριθμὸς καὶ λόγος, συνεχὲς δὲ οἷον γραμμή, 25 ἐπιφάνεια, σῶμα, ἔτι δὲ παρὰ ταῦτα χρόνος καὶ τόπος. τῶν μὲν γὰρ τοῦ ἀριθμοῦ μορίων οὐδείς ἐστι κοινὸς ὅρος, πρὸς ὃν συνάπτει τὰ μόρια αὐτοῦ, οἷον τὰ πέντε εἰ ἔστι τῶν δέκα μόριον, πρὸς οὐδένα κοινὸν ὅρον συνάπτει τὰ πέντε καὶ τὰ πέντε, ἀλλὰ διώρισται· καὶ τὰ τρία γε καὶ τὰ 30 ἑπτὰ πρὸς οὐδένα κοινὸν ὅρον συνάπτει· οὐδ' ὅλως ἂν ἔχοις ἐπ' ἀριθμοῦ κοινὸν ὅρον λαβεῖν τῶν μορίων, ἀλλ' ἀεὶ διώρισται· ὥστε ὁ μὲν ἀριθμὸς τῶν διωρισμένων ἐστίν. ὡσαύτως δὲ καὶ ὁ λόγος τῶν διωρισμένων ἐστίν. ὅτι μὲν γὰρ ποσόν ἐστιν ὁ λόγος, φανερόν· καταμετρεῖται γὰρ συλλαβῇ 35 βραχείᾳ καὶ μακρᾷ. λέγω δὲ αὐτὸν τὸν μετὰ φωνῆς λόγον γιγνόμενον. πρὸς οὐδένα γὰρ κοινὸν ὅρον αὐτοῦ τὰ μόρια συνάπτει· οὐ γὰρ ἔστι κοινὸς ὅρος πρὸς ὃν αἱ συλλαβαὶ συνάπτουσιν, ἀλλ' 5 a ἑκάστη διώρισται αὐτὴ καθ' αὑτήν.

Ἡ δὲ γραμμὴ συνεχής ἐστιν· ἔστι γὰρ λαβεῖν κοινὸν ὅρον πρὸς ὃν τὰ μόρια αὐτῆς συνάπτει, στιγμήν, καὶ τῆς ἐπιφανείας γραμμήν· τὰ γὰρ τοῦ ἐπιπέδου μόρια πρός τινα κοινὸν ὅρον συνάπτει. 5 ὡσαύτως δὲ καὶ ἐπὶ τοῦ σώματος ἔχοις ἂν λαβεῖν κοινὸν ὅρον, γραμμὴν ἢ ἐπιφάνειαν, πρὸς ἃ τὰ

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[a] These divisions are not co-extensive. Line, plane and solid and space are all called continuous quantities: all, too, consist of such parts as have interrelated positions. Time is a continuous quantity; its parts have, however, no

discrete or continuous. Some quantities, moreover, consist of such parts as have relative positions in reference each to the others, while others, on the contrary, consist of such parts as have no such positions.[a] Of quantities that are discrete we may here instance number and speech, of quantities that are continuous line, superficies and solid, to which time and place may be added. Consider the parts of a number. You find there is no common limit at which they may join or unite. For example, two fives will make ten. These, however, are wholly distinct; there is no common limit whatever at which these two fives coalesce. And the same with the parts three and seven. And, indeed, in the case of all numbers you never will find such a boundary, common to any two parts, for the parts remain ever distinct. Thus is number discrete, not continuous. The same may be said about speech, if by speech the spoken word is intended. Being measured in long and short syllables, speech is an evident quantity, whose parts possess no common boundary. No common limit exists, where those parts—that is, syllables—join. Each, indeed, is distinct from the rest.

A line is, however, continuous. Here we discover that limit of which we have just now been speaking. This limit or term is a point. So it is with a plane or a solid. Their parts also have such a limit—a line in the case of the former, a line or a plane in the latter.

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positions in reference the one to the other. See the following from the summary by Waitz: 'quod quantum est id vel discretum esse (numerus, oratio) vel continuum (linea, superficies, corpus; tempus, spatium) exemplis demonstratur,' and 'linea, superficies, corpus et spatium constant e partibus positionem quandam inter se habentibus, non ita numerus, tempus et oratio.'

τοῦ σώματος μόρια συνάπτει. ἔστι δὲ καὶ ὁ χρόνος καὶ ὁ τόπος τῶν τοιούτων· ὁ γὰρ νῦν χρόνος συνάπτει πρὸς τὸν παρεληλυθότα καὶ τὸν μέλλοντα. πάλιν ὁ τόπος τῶν συνεχῶν ἐστί· τόπον γάρ τινα τὰ τοῦ σώματος μόρια κατέχει, ἃ πρός τινα κοινὸν ὅρον συνάπτει· οὐκοῦν καὶ τὰ τοῦ τόπου μόρια, ἃ κατέχει ἕκαστον τῶν τοῦ σώματος μορίων, πρὸς τὸν αὐτὸν ὅρον συνάπτει πρὸς ὃν καὶ τὰ τοῦ σώματος μόρια. ὥστε συνεχὴς ἂν εἴη καὶ ὁ τόπος· πρὸς γὰρ ἕνα κοινὸν ὅρον αὐτοῦ τὰ μόρια συνάπτει.

Ἔτι δὲ τὰ μὲν ἐκ θέσιν ἐχόντων πρὸς ἄλληλα τῶν ἐν αὐτοῖς μορίων συνέστηκε, τὰ δὲ οὐκ ἐξ ἐχόντων θέσιν, οἷον τὰ μὲν τῆς γραμμῆς μόρια θέσιν ἔχει πρὸς ἄλληλα· ἕκαστον γὰρ αὐτῶν κεῖταί που, καὶ ἔχοις ἂν διαλαβεῖν καὶ ἀποδοῦναι ὅπου ἕκαστον κεῖται ἐν τῷ ἐπιπέδῳ καὶ πρὸς ποῖον μόριον τῶν λοιπῶν συνάπτει. ὡσαύτως δὲ καὶ τὰ τοῦ ἐπιπέδου μόρια θέσιν ἔχει τινά· ὁμοίως γὰρ ἂν ἀποδοθείη ἕκαστον οὗ κεῖται, καὶ ποῖα συνάπτει πρὸς ἄλληλα. καὶ τὰ τοῦ στερεοῦ δὲ ὡσαύτως, καὶ τὰ τοῦ τοποῦ. ἐπὶ δέ γε τοῦ ἀριθμοῦ οὐκ ἂν ἔχοι τις ἐπιδεῖξαι ὡς τὰ μόρια αὐτοῦ θέσιν τινὰ ἔχει πρὸς ἄλληλα ἢ κεῖταί που, ἢ ποῖά γε πρὸς ἄλληλα συνάπτει τῶν μορίων. οὐδὲ τὰ τοῦ χρόνου· ὑπομένει γὰρ οὐδὲν τῶν τοῦ χρόνου μορίων· ὃ δὲ μή ἐστιν ὑπομένον, πῶς ἂν τοῦτο θέσιν τινὰ ἔχοι; ἀλλὰ μᾶλλον τάξιν τινὰ εἴποις ἂν ἔχειν τῷ τὸ μὲν πρότερον εἶναι τοῦ χρόνου τὸ δ' ὕστερον. καὶ ἐπὶ τοῦ ἀριθμοῦ δὲ ὡσαύτως τῷ τὸ ἓν πρότερον ἀριθμεῖσθαι τῶν δύο καὶ τὰ δύο τῶν τριῶν· καὶ οὕτω τάξιν τινὰ ἂν ἔχοι, θέσιν δὲ οὐ πάνυ λάβοις ἄν.

Again, time and space are continuous. Time is a whole and continuous; the present, past, future are linked. Space is also this kind of a quantity. For seeing the parts of a solid themselves occupy so much space and these parts have a limit in common, it follows the parts of space also, which those parts themselves occupy, have exactly the same common limit or term as the parts of the solid. As is time, so is space, then, continuous: the parts meet at one common boundary.

All quantities are made up of parts; and those parts, as we saw, have position in reference one to another or else they have no such position. The parts of a line, for example, must all have their relative places. Each, without doubt, must lie *somewhere*, and each can be clearly distinguished. You can say where each lies on the plane and to what sort of part it is next. So the parts of the plane have position: again you can say where each lies and to what sort of parts it is next. This is true, too, of solids and space. But the case of a number is different. You never could show that its parts are possessed of their relative places or even so much as have places. Nor could you determine which parts are contiguous or adjacent to which. And the same may be said of time also. For no part of time is enduring. And how can what does not endure well be said to have any position? Of time it were better to say that the parts have a relative order, since one part is prior to another. And so, in like manner, of number, for numbers are prior in the counting, as one prior to two, two to three. Thus of number also we may say that the parts have a relative order but certainly have no positions. This, also, will hold

καὶ ὁ λόγος δὲ ὡσαύτως· οὐδὲν γὰρ ὑπομένει τῶν μορίων αὐτοῦ, ἀλλ' εἴρηταί τε καὶ οὐκ ἔστιν ἔτι τοῦτο λαβεῖν, ὥστε οὐκ ἂν εἴη θέσις τῶν μορίων αὐτοῦ, εἴγε μηδὲν ὑπομένει. τὰ μὲν οὖν ἐκ θέσιν ἐχόντων τῶν μορίων συνέστηκε, τὰ δὲ οὐκ ἐξ ἐχόντων θέσιν.

Κυρίως δὲ ποσὰ ταῦτα μόνα λέγεται τὰ εἰρημένα, τὰ δὲ ἄλλα πάντα κατὰ συμβεβηκός· εἰς ταῦτα γὰρ ἀποβλέποντες καὶ τἆλλα ποσὰ λέγομεν, οἷον πολὺ τὸ λευκὸν λέγεται τῷ τὴν ἐπιφάνειαν πολλὴν εἶναι, καὶ ἡ πρᾶξις μακρὰ τῷ γε τὸν χρόνον πολὺν εἶναι, καὶ ἡ κίνησις πολλή. οὐ γὰρ καθ' αὑτὸ ἕκαστον τούτων ποσὸν λέγεται. οἷον ἐὰν ἀποδιδῷ τις πόση τις ἡ πρᾶξίς ἐστι, τῷ χρόνῳ ὁριεῖ, ἐνιαυσιαίαν ἢ οὕτω πως ἀποδιδούς. καὶ τὸ λευκὸν ποσόν τι ἀποδιδοὺς τῇ ἐπιφανείᾳ ὁριεῖ· ὅση γὰρ ἂν ἡ ἐπιφάνεια ᾖ, τοσοῦτον καὶ τὸ λευκὸν φήσειεν ἂν εἶναι. ὥστε μόνα κυρίως καὶ καθ' αὑτὰ ποσὰ λέγεται τὰ εἰρημένα, τῶν δὲ ἄλλων οὐδὲν καθ' αὑτό, ἀλλ' εἰ ἄρα, κατὰ συμβεβηκός.

Ἔτι τῷ ποσῷ οὐδέν ἐστιν ἐναντίον. ἐπὶ μὲν γὰρ τῶν ἀφωρισμένων φανερὸν ὅτι οὐδέν ἐστιν ἐναντίον, οἷον τῷ διπήχει ἢ τριπήχει ἢ τῇ ἐπιφανείᾳ ἢ τῶν τοιούτων τινί· οὐδὲν γάρ ἐστιν αὐτοῖς ἐναντίον, εἰ μὴ ἄρα τὸ πολὺ τῷ ὀλίγῳ φαίη τις εἶναι ἐναντίον ἢ τὸ μέγα τῷ μικρῷ. τούτων δὲ οὐδέν ἐστι ποσὸν ἀλλὰ τῶν πρός τι· οὐδὲν γὰρ αὐτὸ καθ' αὑτὸ μέγα λέγεται ἢ μικρόν,

good of speech, for the parts have no lasting existence. Pronounce them, and then they are gone, so that, since they pass out of existence, they cannot have place or position. Of quantities, then, to sum up, some consist of parts having position and others of parts that have not.

The things we have mentioned alone can be called in the strictest sense quantities. Other things that are so called are so called in a secondary sense—with an eye to some one of the former. To take an example or two. A white object is often called large, since the surface it covers is large, an action or process called long, since the time that it occupies is long. The name 'quantity' cannot be given to such things as of their own right. Someone asks you 'how long was that action?' You mention the time that it took, as 'it lasted a year' or the like. Someone asks you 'how large is that white thing?' You mention the surface it covers. As large as the surface it covers, so large, you will say, that white object. The things, then, referred to alone in themselves can be strictly called quantities; other things thus designated can only lay claim to that name, if at all, in a secondary sense—in a sort of derivative fashion and not from their intrinsic nature.

Quantities never have contraries. This will be perfectly clear in the case of all definite quantities, whereby I mean, for example, 'two cubits' or 'three cubits long' or a surface or something of that sort. These, it is clear, have no contraries. But possibly someone may say, 'great' and 'small,' 'much' and 'little' are contraries. These are, however, more properly regarded as terms of relation: *as such*, things are not great or small. They are so

ἀλλὰ τῷ πρὸς ἕτερον ἀναφέρεσθαι, οἷον ὄρος μὲν μικρὸν λέγεται, κέγχρος δὲ μεγάλη τῷ τὴν μὲν τῶν ὁμογενῶν μείζονα εἶναι, τὸ δὲ ἔλαττον τῶν ὁμογενῶν. οὐκοῦν πρὸς ἕτερον ἡ ἀναφορά, ἐπεὶ εἴγε καθ' αὑτὸ μικρὸν ἢ μέγα ἐλέγετο, οὐκ ἄν ποτε τὸ μὲν ὄρος μικρὸν ἐλέγετο, ἡ δὲ κέγχρος μεγάλη. πάλιν ἐν μὲν τῇ κώμῃ φαμὲν πολλοὺς ἀνθρώπους εἶναι, ἐν Ἀθήναις δὲ ὀλίγους πολλαπλασίους αὐτῶν ὄντας, καὶ ἐν μὲν τῇ οἰκίᾳ πολλούς, ἐν δὲ τῷ θεάτρῳ ὀλίγους πολλῷ πλείους ὄντας. ἔτι τὸ μὲν δίπηχυ καὶ τρίπηχυ καὶ ἕκαστον τῶν τοιούτων ποσὸν σημαίνει, τὸ δὲ μέγα ἢ μικρὸν οὐ σημαίνει ποσὸν ἀλλὰ μᾶλλον πρός τι· πρὸς γὰρ ἕτερον θεωρεῖται τὸ μέγα καὶ τὸ μικρόν. ὥστε φανερὸν ὅτι ταῦτα τῶν πρός τί ἐστιν.

Ἔτι ἐάν τε τιθῇ τις ταῦτα ποσὰ εἶναι ἐάν τε μὴ τιθῇ, οὐκ ἔστιν αὐτοῖς ἐναντίον οὐδέν· ὃ γὰρ μή ἐστιν αὐτὸ καθ' αὑτὸ λαβεῖν ἀλλὰ πρὸς ἕτερον ἀναφέρεται, πῶς ἂν φαίη τις τούτῳ τι ἐναντίον; ἔτι δὲ εἰ ἔσται τὸ μέγα καὶ τὸ μικρὸν ἐναντία, συμβήσεται τὸ αὐτὸ ἅμα τὰ ἐναντία ἐπιδέχεσθαι καὶ αὐτὰ ἑαυτοῖς εἶναι ἐναντία. συμβαίνει γάρ ποτε ἅμα τὸ αὐτὸ μέγα τε καὶ μικρὸν εἶναι· ἔστι γὰρ πρὸς μὲν τοῦτο μικρόν, πρὸς ἕτερον δὲ τὸ αὐτὸ τοῦτο μέγα. ὥστε τὸ αὐτὸ καὶ μέγα καὶ μικρὸν κατὰ τὸν αὐτὸν χρόνον εἶναι συμβαίνει· ὥστε ἅμα τὰ ἐναντία ἐπιδέχεσθαι. ἀλλ' οὐδὲν δοκεῖ ἅμα τὰ ἐναντία ἐπιδέχεσθαι, οἷον ἐπὶ τῆς οὐσίας· δεκτικὴ μὲν τῶν ἐναντίων δοκεῖ εἶναι, ἀλλ' οὔτι γε ἅμα νοσεῖ καὶ ὑγιαίνει. ἀλλ' οὐδὲ

by comparison only. Thus a hill is called small, a grain large ; but we really mean greater or smaller than similar things of the kind, for we look to some external standard. If such terms were used absolutely, we never should call a hill small, as we never should call a grain large. So, again, we may very well say that a village has many inhabitants, a city like Athens but few, though the latter are many times more ; or we say that a house contains many, while those in the theatre are few, though they greatly outnumber the others. While ' two cubits,' ' three cubits long ' and the like, therefore, signify quantity, ' great,' ' small ' and the like signify not a quantity but rather a relation, implying some external standard or something above and beyond them. The latter, then, plainly are relative.

Quantities, moreover, or not, there is nothing that is contrary to them. For what is not grasped by itself but referred to some external standard—how suppose that can have any contrary ? Secondly, suppose we allow ' great ' and ' small ' and the like to be contraries, then the same subject, it follows, at one and the same time admits of the contrary qualifications and things to themselves will be contrary. Does it not sometimes occur that the same thing is both great and small ? As compared with one thing, it is small ; it is great, as compared with another. And so the same thing simultaneously comes to be both great and small or at one and the same time admits of the contrary qualifications. But in dealing with substance we stated that nothing can thus simultaneously admit of such qualifications. Substance, no doubt, is receptive of contrary qualifications, but not in such way that a man at the same time is both

6 a λευκὸν καὶ μέλαν ἐστὶν ἅμα. ἀλλ' οὐδὲ τῶν ἄλλων οὐδέν ἐστιν ὃ ἅμα τὰ ἐναντία ἐπιδέχεται. καὶ αὐτὰ δ' ἑαυτοῖς συμβαίνει ἐναντία εἶναι. εἰ γάρ ἐστι τὸ μέγα τῷ μικρῷ ἐναντίον, τὸ δ' αὐτό ἐστιν ἅμα μέγα καὶ μικρόν, αὐτὸ ἑαυτῷ εἴη ἂν ἐναντίον. ἀλλὰ τῶν ἀδυνάτων ἐστὶν αὐτὸ ἑαυτῷ εἶναί τι ἐναντίον. οὐκ ἔστιν ἄρα τὸ μέγα τῷ μικρῷ ἐναντίον, οὐδὲ τὸ πολὺ τῷ ὀλίγῳ. ὥστε εἰ καὶ μὴ τῶν πρός τι ταῦτά τις ἐρεῖ ἀλλὰ τοῦ ποσοῦ, οὐδὲν ἐναντίον ἕξει.

Μάλιστα δὲ ἡ ἐναντιότης τοῦ ποσοῦ περὶ τὸν τόπον δοκεῖ ὑπάρχειν. τὸ γὰρ ἄνω τῷ κάτω ἐναντίον τιθέασι, τὴν πρὸς τὸ μέσον χώραν κάτω λέγοντες διὰ τὸ πλείστην τῷ μέσῳ διάστασιν πρὸς τὰ πέρατα τοῦ κόσμου εἶναι. ἐοίκασι δὲ καὶ τὸν τῶν ἄλλων ἐναντίων ὁρισμὸν ἀπὸ τούτων ἐπιφέρειν· τὰ γὰρ πλεῖστον ἀλλήλων διεστηκότα τῶν ἐν τῷ αὐτῷ γένει ἐναντία ὁρίζονται.

Οὐ δοκεῖ δὲ τὸ ποσὸν ἐπιδέχεσθαι τὸ μᾶλλον καὶ ἧττον, οἷον τὸ δίπηχυ· οὐ γάρ ἐστιν ἕτερον ἑτέρου μᾶλλον δίπηχυ. οὐδ' ἐπὶ τοῦ ἀριθμοῦ, οἷον τὰ τρία τῶν πέντε οὐδὲν μᾶλλον τὰ τρία, οὐδὲ τὰ πέντε τῶν τριῶν. οὐδὲ χρόνος ἕτερος ἑτέρου μᾶλλον χρόνος εἶναι λέγεται. οὐδ' ἐπὶ

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[a] 'The extremities' apparently refers to the circumference *taken as a whole.*

[b] The meaning I give to this sentence the context appears to require. But the text must, I think, be corrupt.

sick and healthy, a thing black and white simultaneously. Neither can anything else be at any time thus qualified. Then, if ' great,' ' small ' and so forth were contrary, these to themselves would be contrary. Granted for argument's sake both that ' great ' is the contrary of ' small ' and that one and the same thing can be at the same moment both great and small, ' great ' or ' small ' to itself will be contrary. This is, however, impossible : nothing to itself can be contrary. Therefore, we cannot describe ' great ' and ' small,' ' much ' and ' little ' as contraries. Neither could such terms have contraries, even though someone should call them terms not of relation but of quantity.

In dealing with space, the contention that quantity admits of a contrary seems to have most plausibility. ' Above ' and ' below ' are called contraries, when by ' below ' what is meant is the region or space at the centre. This use is, however, derived from the view that we take of the world, since it is at the extremities of the world that the distance from the centre is the greatest.[a] Indeed, in defining *all* contraries, we seem to have space in our minds. For we call those things contrary which, being also within the same class, are *most distant* the one from the other.

Quantities do not appear to admit of a more and a less. For example, take ' two cubits long.' Now, this never admits of gradations. A thing is not two cubits long in a greater degree than another. And so, in like manner, of numbers. One three is not, so to speak, three in a greater degree than another ; one five is not, so to speak, five in a greater degree than another.[b] One period of time is, moreover, not more of a time than another. Nor of any other

τῶν εἰρημένων ὅλως οὐδενὸς τὸ μᾶλλον καὶ τὸ ἧττον λέγεται. ὥστε καὶ τὸ ποσὸν οὐκ ἐπιδέχεται τὸ μᾶλλον καὶ τὸ ἧττον.

Ἴδιον δὲ μάλιστα τοῦ ποσοῦ τὸ ἴσον τε καὶ ἄνισον λέγεσθαι. ἕκαστον γὰρ τῶν εἰρημένων ποσῶν ἴσον τε καὶ ἄνισον λέγεται, οἷον σῶμα καὶ ἴσον καὶ ἄνισον λέγεται, καὶ χρόνος καὶ ἴσος καὶ ἄνισος. ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων τῶν ῥηθέντων ἕκαστον ἴσον τε καὶ ἄνισον λέγεται. τῶν δὲ λοιπῶν ὅσα μή ἐστι ποσά, οὐ πάνυ ἂν δόξαι ἴσα τε καὶ ἄνισα λέγεσθαι, οἷον ἡ διάθεσις οὐ πάνυ ἴση τε καὶ ἄνισος λέγεται, ἀλλὰ μᾶλλον ὁμοία, καὶ τὸ λευκὸν ἴσον τε καὶ ἄνισον οὐ πάνυ, ἀλλ' ὅμοιον. ὥστε τοῦ ποσοῦ μάλιστα ἂν εἴη ἴδιον τὸ ἴσον τε καὶ ἄνισον λέγεσθαι.

VII. Πρός τι δὲ τὰ τοιαῦτα λέγεται, ὅσα αὐτὰ ἅπερ ἐστὶν ἑτέρων εἶναι λέγεται, ἢ ὁπωσοῦν ἄλλως πρὸς ἕτερον, οἷον τὸ μεῖζον τοῦθ' ὅπερ ἐστὶν ἑτέρου λέγεται· τινὸς γὰρ λέγεται μεῖζον· καὶ τὸ διπλάσιον τοῦθ' ὅπερ ἐστὶν ἑτέρου λέγεται· τινὸς γὰρ διπλάσιον λέγεται. ὡσαύτως δὲ καὶ ὅσα ἄλλα τοιαῦτα. ἔστι δὲ καὶ τὰ τοιαῦτα τῶν πρός τι οἷον ἕξις, διάθεσις, αἴσθησις, ἐπιστήμη, θέσις. πάντα γὰρ τὰ εἰρημένα αὐτὰ ἅπερ ἐστὶν ἑτέρων εἶναι

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[a] Aristotle here classifies as relatives two distinct classes of terms, those said 'to be *of* other things' and those said 'to be towards something else' (*ad aliquid*) 'in some other manner.' He means by the former all terms with a genitive dependent upon them. This distinction cannot be brought out in the same concise manner in English. There is no single form that will cover all the uses of the genitive in Greek. The Greek genitive, for instance, expresses not only our 'of' but our 'than.'

quantity mentioned can a 'more' or a 'less' be affirmed. The category, therefore, of quantity in no wise admits of degrees.

What is really peculiar to quantities is that we compare or contrast them in terms or on grounds of equality. We predicate 'equal,' 'unequal,' of all of the quantities mentioned. One solid is equal to another, another, *per contra*, unequal. We use these terms also of time in comparing the periods of it. So also of all other quantities that we have previously mentioned. Of nothing, moreover, save quantities can we affirm these two terms. For we never say this disposition is 'equal' to that or 'unequal.' We say it is 'like' or 'unlike.' One quality—whiteness, for instance—is never compared with another in terms or on grounds of equality. Such things are termed 'like' and 'unlike.' Thus our calling something 'equal,' 'unequal,' is the mark, above all marks, of quantity.

VII. Let us now turn to Relation. We call a thing relative, when it is said to be such as it is from its being *of* some other thing or, if not, from its being related to something in some other way.[a] Thus 'the greater' is said to be greater by reference to something outside it. For, indeed, when we call a thing 'greater,' we mean by that greater *than* something. 'The double' is called what it is from its being the double *of* something. For 'double' means double *of* something. And so with all terms of that kind. Other relatives also there are, such as habit, disposition, perception, position or attitude, knowledge. All these are explained by a reference to something to which they belong, and in no other way

b λέγεται καὶ οὐκ ἄλλο τι· ἡ γὰρ ἕξις τινὸς ἕξις 5 λέγεται καὶ ἡ ἐπιστήμη τινὸς ἐπιστήμη καὶ ἡ θέσις τινὸς θέσις, καὶ τὰ ἄλλα δὲ ὡσαύτως. πρός τι οὖν ἐστὶν ὅσα αὐτὰ ἅπερ ἐστὶν ἑτέρων εἶναι λέγεται, ἢ ὁπωσοῦν ἄλλως πρὸς ἕτερον, οἷον ὄρος μέγα λέγεται πρὸς ἕτερον· πρός τι γὰρ μέγα λέγεται τὸ ὄρος· καὶ τὸ ὅμοιον τινὶ ὅμοιον λέγεται, 10 καὶ τὰ ἄλλα δὲ τὰ τοιαῦτα ὡσαύτως πρός τι λέγεται. ἔτι δὲ καὶ ἡ ἀνάκλισις καὶ ἡ στάσις καὶ ἡ καθέδρα θέσεις τινές, ἡ δὲ θέσις τῶν πρός τι. τὸ δὲ ἀνακεῖσθαι ἢ ἑστάναι ἢ καθῆσθαι αὐτὰ μὲν οὐκ εἰσὶ θέσεις, παρωνύμως δὲ ἀπὸ τῶν εἰρημένων θέσεων λέγεται.

15 Ὑπάρχει δὲ καὶ ἐναντιότης ἐν τοῖς πρός τι, οἷον ἀρετὴ κακίᾳ ἐναντίον, ἑκάτερον ὂν τῶν πρός τι, καὶ ἐπιστήμη ἀγνοίᾳ. οὐ πᾶσι δὲ τοῖς πρός τι ὑπάρχει τὸ ἐναντίον· τῷ γὰρ διπλασίῳ οὐδέν ἐστιν ἐναντίον, οὐδὲ τῷ τριπλασίῳ, οὐδὲ τῶν τοιούτων οὐδενί.

20 Δοκεῖ δὲ καὶ τὸ μᾶλλον καὶ τὸ ἧττον ἐπιδέχεσθαι τὰ πρός τι· ὅμοιον γὰρ καὶ ἀνόμοιον μᾶλλον καὶ ἧττον λέγεται, καὶ ἴσον καὶ ἄνισον μᾶλλον καὶ ἧττον λέγεται, ἑκάτερον αὐτῶν πρός τι ὄν· τό τε γὰρ ὅμοιον τινὶ ὅμοιον λέγεται καὶ τὸ ἀνόμοιον τινὶ 25 ἀνόμοιον. οὐ πάντα δὲ τὰ πρός τι ἐπιδέχεται τὸ μᾶλλον καὶ ἧττον· τὸ γὰρ διπλάσιον οὐ λέγεται μᾶλλον καὶ ἧττον διπλάσιον, οὐδὲ τῶν τοιούτων οὐδέν.

relation
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Πάντα δὲ τὰ πρός τι πρὸς ἀντιστρέφοντα λέγεται, 8 οἷον ὁ δοῦλος δεσπότου δοῦλος λέγεται καὶ ὁ δεσπότης δούλου δεσπότης, καὶ τὸ διπλάσιον ἡμίσεος διπλάσιον καὶ τὸ ἥμισυ διπλασίου ἥμισυ,

whatsoever. A habit is a habit *of* something, knowledge is knowledge *of* something, position position *of* something. We speak, then, of relative terms, when a thing's being such as it is is explained by a genitive following or else by some phrase or expression designed to bring out the relation. For instance, we call a hill 'large,' meaning large as compared with another. By such a comparison only it is that a hill is called 'large.' So we call a thing 'similar,' 'like'—'like' or 'similar' *to* something else. It is thus with all terms of that nature. This also we notice in passing: while lying and standing and sitting are really specific positions, position itself is a relative. To lie and to stand and to sit, these are not themselves really positions; their names are, however, derived from the attitudes just now referred to.

Relatives sometimes have contraries. Virtue is contrary to vice, either term itself being a relative; knowledge to ignorance also. By no means all relative terms can, however, be said to have contraries. 'Double' and 'triple' have none, nor, indeed, any terms of that sort.

Relatives also, it seems, may admit of degrees in some cases, as 'like,' 'unlike,' 'equal,' 'unequal,' which all may have 'more' or 'less' added, while each is a relative term. For by 'like' we mean like something else and by 'unlike' unlike something else. It is not the case, nevertheless, that *all* relatives admit of degrees. We do not say 'more' or 'less double,' and so with all terms of that kind.

All relatives have their correlatives. 'Slave' means the slave of a master, and 'master,' in turn, implies slave. 'Double' means double its half, just as 'half' means the half of its double. By 'greater,'

καὶ τὸ μεῖζον ἐλάττονος μεῖζον καὶ τὸ ἔλαττον μείζονος ἔλαττον. ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων, πλὴν τῇ πτώσει ἐνίοτε διοίσει κατὰ τὴν λέξιν, οἷον ἡ ἐπιστήμη ἐπιστητοῦ λέγεται ἐπιστήμη καὶ τὸ ἐπιστητὸν ἐπιστήμῃ ἐπιστητόν, καὶ ἡ αἴσθησις αἰσθητοῦ αἴσθησις καὶ τὸ αἰσθητὸν αἰσθήσει αἰσθητόν.

Οὐ μὴν ἀλλ' ἐνίοτε οὐ δόξει ἀντιστρέφειν, ἐὰν μὴ οἰκείως πρὸς ὃ λέγεται ἀποδοθῇ, ἀλλὰ διαμάρτῃ ὁ ἀποδιδούς, οἷον τὸ πτερὸν ἐὰν ἀποδοθῇ ὄρνιθος, οὐκ ἀντιστρέφει ὄρνις πτεροῦ. οὐ γὰρ οἰκείως τὸ πρῶτον ἀποδέδοται πτερὸν ὄρνιθος· οὐ γὰρ ᾗ ὄρνις, ταύτῃ τὸ πτερὸν αὐτοῦ λέγεται, ἀλλ' ᾗ πτερωτόν ἐστι· πολλῶν γὰρ καὶ ἄλλων πτερά ἐστιν, ἃ οὐκ εἰσὶν ὄρνιθες. ὥστε ἐὰν ἀποδοθῇ οἰκείως, καὶ ἀντιστρέφει, οἷον τὸ πτερὸν πτερωτοῦ πτερὸν καὶ τὸ πτερωτὸν πτερῷ πτερωτόν.

Ἐνίοτε δὲ καὶ ὀνοματοποιεῖν ἴσως ἀναγκαῖον, ἐὰν μὴ κείμενον ᾖ ὄνομα πρὸς ὃ οἰκείως ἂν ἀποδοθείη, οἷον τὸ πηδάλιον τοῦ πλοίου ἐὰν ἀποδοθῇ, οὐκ οἰκεία ἡ ἀπόδοσις γίνεται· οὐ γὰρ ᾗ πλοῖον, ταύτῃ αὐτοῦ τὸ πηδάλιον λέγεται· ἔστι γὰρ πλοῖα ὧν οὐκ ἔστι πηδάλια. διὸ οὐκ ἀντιστρέφει· τὸ γὰρ πλοῖον οὐ λέγεται πηδαλίου πλοῖον. ἀλλ' ἴσως οἰκειοτέρα ἂν ἡ ἀπόδοσις εἴη, εἰ οὕτω πως ἀποδοθείη, τὸ πηδάλιον πηδαλιωτοῦ πηδάλιον, ἢ ὁπωσοῦν ἄλλως· ὄνομα γὰρ οὐ κεῖται. καὶ ἀντιστρέφει γε, ἐὰν οἰκείως ἀποδοθῇ· τὸ γὰρ πηδα-

again, we mean greater than this or that thing which is less, by ' less ' less than that which is greater. So it is with all relative terms. On occasions, however, the case or grammatical inflexion will differ. Knowledge is thus *of* the knowable ; the knowable is knowable *by* knowledge. Perception is *of* the perceptible, which is perceived *by* perception.

At times the correlation, however, will not manifestly appear—namely, when a mistake has been made and the correlate itself wrongly stated. If you call a wing wing of a bird, then will no correlation appear ; wing and bird are, I mean, not correlative. The wrong term was used at the outset in calling it wing *of a bird*. For the wing is the wing of a bird, when considered as *winged*, not as bird. Many other things, not birds, are winged. When, however, the right terms are used, the correlation will forthwith appear, as when, for example, we say that a wing is a wing of the winged and the winged thing is winged by a wing. Wing belongs to the winged of necessity.

At times there is no word in Greek that will rightly bring out the correlation. Then, I think, we must coin a new word. Let us take, for example, a rudder. We may say this belongs to a boat. ' To a boat ' is, however, inappropriate and fails to bring out the correlation. Not, indeed, to the boat viewed as boat does the rudder belong of necessity. Are there not boats without rudders ? Thus rudder and boat are not reciprocal. ' Boat ' is not ' boat of a rudder,' as rudder is rudder of a boat. Since no proper term now exists, we must coin one to suit the occasion and speak with more accuracy thus—the rudder is rudder of ' the ruddered.' And, if we express ourselves thus, then at least will the terms be reciprocal. That is to

λιωτὸν πηδαλίῳ πηδαλιωτόν. ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων, οἷον ἡ κεφαλὴ οἰκειοτέρως ἂν ἀποδοθείη κεφαλωτοῦ ἢ ζῴου ἀποδιδομένη· οὐ γὰρ ᾗ ζῷον, κεφαλὴν ἔχει· πολλὰ γὰρ τῶν ζῴων κεφαλὴν οὐκ ἔχει. οὕτω δὲ ῥᾷστα ἂν ἴσως τις λάβοι οἷς μὴ κεῖται ὀνόματα, εἰ ἀπὸ τῶν πρώτων καὶ τοῖς πρὸς αὐτὰ ἀντιστρέφουσι τιθείη τὰ ὀνόματα, ὥσπερ ἐπὶ τῶν προειρημένων ἀπὸ τοῦ πτεροῦ τὸ πτερωτὸν καὶ ἀπὸ τοῦ πηδαλίου τὸ πηδαλιωτόν.

Πάντα οὖν τὰ πρός τι, ἐάν περ οἰκείως ἀποδιδῶται, πρὸς ἀντιστρέφοντα λέγεται, ἐπεὶ ἐάν γε πρὸς τὸ τυχὸν ἀποδιδῶται καὶ μὴ πρὸς αὐτὸ ὃ λέγεται, οὐκ ἀντιστρέφει. λέγω δὲ ὅτι οὐδὲ τῶν ὁμολογουμένως πρὸς ἀντιστρέφοντα λεγομένων, καὶ ὀνομάτων αὐτοῖς κειμένων, οὐδὲν ἀντιστρέφει, ἐὰν πρός τι τῶν συμβεβηκότων ἀποδιδῶται καὶ μὴ πρὸς αὐτὸ ὃ λέγεται, οἷον ὁ δοῦλος ἐὰν μὴ δεσπότου ἀποδοθῇ ἀλλ' ἀνθρώπου ἢ δίποδος ἢ ὁτουοῦν τῶν τοιούτων, οὐκ ἀντιστρέφει· οὐ γὰρ οἰκεία ἡ ἀπόδοσίς ἐστιν. ἔτι δ' ἐὰν μέν τι οἰκείως ἀποδεδομένον ᾖ πρὸς ὃ λέγεται, πάντων περιαιρουμένων τῶν ἄλλων ὅσα συμβεβηκότα ἐστί, καταλειπομένου δὲ μόνου τούτου πρὸς ὃ ἀπεδόθη οἰκείως, ἀεὶ πρὸς αὐτὸ ῥηθήσεται, οἷον ὁ δοῦλος ἐὰν πρὸς δεσπότην λέγηται, περιαιρουμένων τῶν ἄλλων ἀπάντων ὅσα συμβεβηκότα ἐστὶ τῷ δε-

say, what is ruddered is ruddered by means of its rudder. So also in all other cases. A head will be better defined as correlative of that which is 'headed,' not, loosely, as head of an animal. Animals, simply as animals, do not have heads of necessity. Many, indeed, have no heads. We may thus, I think, best understand to what this or that thing is related, where no name at present exists, if we take the thing having a name and then, coining another name from it, apply it to the former's correlative just as we coined 'winged' and 'ruddered' above from the names 'wing' and 'rudder.'

Thus all relatives are referred to their correlates, provided they are rightly defined. I must add this proviso because, if the correlate happens to be stated in casual, inaccurate fashion, the terms cannot well be reciprocal. Let me explain what I mean. Even where the right names do exist and the things are admittedly correlates, no correlation appears, when we give one of these two a name that in no way brings out the relation and has some irrelevant meaning. Let 'slave' be defined in relation to 'man' or to 'biped' or what not, instead of its being defined (as it should be) by reference to 'master,' then no correlation appears, for the reference is really inaccurate. Again, let us grant that two things are correlative one with another and that the correct term is used for the purpose of stating the second. Although we remove all its other—I mean, its irrelevant—attributes, leaving that only in virtue of which it was called the correlative, then will the said correlation be, none the less, found to exist. The correlative of 'slave,' for example, is properly said to be 'master.' Suppose we remove all his other—I mean, his irre-

7a σπότῃ, οἷον τὸ δίποδι εἶναι καὶ τὸ ἐπιστήμης δεκτικῷ καὶ τὸ ἀνθρώπῳ, καταλειπομένου δὲ μόνου τοῦ δεσπότην εἶναι, ἀεὶ ὁ δοῦλος πρὸς αὐτὸ 7b ῥηθήσεται· ὁ γὰρ δοῦλος δεσπότου δοῦλος λέγεται.

Ἐὰν δέ γε μὴ οἰκείως ἀποδοθῇ πρὸς ὅ ποτε λέγεται, περιαιρουμένων μὲν τῶν ἄλλων, καταλειπομένου δὲ μόνου τοῦ πρὸς ὃ ἀπεδόθη, οὐ ῥηθήσεται πρὸς αὐτό. ἀποδεδόσθω γὰρ ὁ δοῦλος ἀνθρώπου καὶ τὸ πτερὸν ὄρνιθος, καὶ περιῃρήσθω 5 τοῦ ἀνθρώπου τὸ δεσπότην αὐτὸν εἶναι· οὐ γὰρ ἔτι ὁ δοῦλος πρὸς ἄνθρωπον ῥηθήσεται· μὴ γὰρ ὄντος δεσπότου οὐδὲ δοῦλός ἐστιν. ὡσαύτως καὶ τοῦ ὄρνιθος περιῃρήσθω τὸ πτερωτῷ εἶναι· οὐ γὰρ ἔτι ἔσται τὸ πτερὸν τῶν πρός τι· μὴ γὰρ ὄντος πτερωτοῦ οὐδὲ πτερὸν ἔσται τινός.

10 Ὥστε δεῖ μὲν ἀποδιδόναι πρὸς ὅ ποτε οἰκείως λέγεται. κἂν μὲν ὄνομα ᾖ κείμενον, ῥᾳδία ἡ ἀπόδοσις γίνεται· μὴ ὄντος δὲ ἀναγκαῖον ἴσως ὀνοματοποιεῖν. οὕτω δὲ ἀποδιδομένων φανερὸν ὅτι πάντα τὰ πρός τι πρὸς ἀντιστρέφοντα λέγεται.

15 Δοκεῖ δὲ τὰ πρός τι ἅμα τῇ φύσει εἶναι, καὶ ἐπὶ μὲν τῶν πλείστων ἀληθές ἐστιν. ἅμα γὰρ διπλάσιόν τέ ἐστι καὶ ἥμισυ, καὶ ἡμίσεος ὄντος διπλάσιόν ἐστι· καὶ δεσπότου ὄντος δοῦλός ἐστι, καὶ δούλου ὄντος δεσπότης ἐστίν· ὁμοίως δὲ τού- 20 τοις καὶ τὰ ἄλλα. καὶ συναναιρεῖ δὲ ταῦτα ἄλληλα· μὴ γὰρ ὄντος διπλασίου οὐκ ἔστιν ἥμισυ, καὶ ἡμίσεος μὴ ὄντος οὐκ ἔστι διπλάσιον· ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων ὅσα τοιαῦτα. οὐκ ἐπὶ πάντων δὲ τῶν πρός τι ἀληθὲς δοκεῖ τὸ ἅμα τῇ φύσει

levant—attributes, such as his being 'two-footed,' 'receptive of knowledge' or 'human,' and leave but his being 'a master,' then 'slave' will be still the correlative, 'slave' *meaning* slave *of a master*.

On the other hand, let us suppose one correlative named incorrectly. Then, if we strip off its attributes, saving that only in virtue of which it was called a correlative, all correlation will vanish. Let 'a slave' be defined as 'a man's'; let 'a wing' be defined as 'a bird's.' Take the attribute 'master' from 'man': then, indeed, the correlation subsisting between 'man' and 'slave' will have vanished. No master, in short, then no slave. Take the attribute 'winged' from 'the bird.' Then the wing will no more be a relative: nought will there now be a wing of, the bird being no longer winged.

And so, to sum up, we must state all correlative terms with exactness. If a name is already to hand, then the statement will prove to be easy. If no name already exists, then I think it our duty to coin one. It is clear, when the names are correct, that all relative terms are correlative.

Correlatives are commonly held to come into existence together, and this for the most part is true, as, for instance, of double and half. That a half exists means that the double of which it is half must exist. The existence of a master involves the existence also of a slave. If a slave exists, then must a master. And so in all similar cases. Moreover, this holds of them also: to cancel one cancels the other. For instance, no double, no half, and, *per contra*, no half, then no double: and so with all similar terms. However, the view that correlatives come into being together does not appear true at all times, for it

7 b εἶναι· τὸ γὰρ ἐπιστητὸν πρότερον ἂν δόξειε τῆς
ἐπιστήμης εἶναι. ὡς γὰρ ἐπὶ τὸ πολὺ προϋπαρχόντων
25 τῶν πραγμάτων τὰς ἐπιστήμας λαμβάνομεν·
ἐπ' ὀλίγων γὰρ ἂν ἢ ἐπ' οὐδενὸς ἴδοι
τις ἂν ἅμα τῷ ἐπιστητῷ τὴν ἐπιστήμην γινομένην.

Ἔτι τὸ μὲν ἐπιστητὸν ἀναιρεθὲν συναναιρεῖ τὴν
ἐπιστήμην, ἡ δὲ ἐπιστήμη τὸ ἐπιστητὸν οὐ συναναιρεῖ·
ἐπιστητοῦ μὲν γὰρ μὴ ὄντος οὐκ ἔστιν ἐπιστήμη
30 (οὐδενὸς γὰρ ἔσται ἐπιστήμη), ἐπιστήμης
δὲ μὴ οὔσης οὐδὲν κωλύει ἐπιστητὸν εἶναι, οἷον
καὶ ὁ τοῦ κύκλου τετραγωνισμὸς εἴγε ἔστιν ἐπιστητόν,
ἐπιστήμη μὲν αὐτοῦ οὐκ ἔστιν οὐδέπω,
αὐτὸς δὲ ἐπιστητόν ἐστιν. ἔτι ζῴου μὲν ἀναιρεθέντος
οὐκ ἔσται ἐπιστήμη, τῶν δ' ἐπιστητῶν
πολλὰ ἐνδέχεται εἶναι.

35 Ὁμοίως δὲ τούτοις καὶ τὰ ἐπὶ τῆς αἰσθήσεως
ἔχει. τὸ γὰρ αἰσθητὸν πρότερον τῆς αἰσθήσεως
δοκεῖ εἶναι. τὸ μὲν γὰρ αἰσθητὸν ἀναιρεθὲν
συναναιρεῖ τὴν αἴσθησιν, ἡ δὲ αἴσθησις τὸ αἰσθητὸν
οὐ συναναιρεῖ. αἱ γὰρ αἰσθήσεις περὶ σῶμα καὶ
ἐν σώματί εἰσιν, αἰσθητοῦ δὲ ἀναιρεθέντος ἀναιρεῖται
8 a καὶ τὸ σῶμα (τῶν γὰρ αἰσθητῶν τὸ σῶμα),
σώματος δὲ μὴ ὄντος ἀναιρεῖται καὶ ἡ αἴσθησις,
ὥστε συναναιρεῖ τὸ αἰσθητὸν τὴν αἴσθησιν. ἡ
δέ γε αἴσθησις τὸ αἰσθητὸν οὐ συναναιρεῖ· ζῴου
γὰρ ἀναιρεθέντος αἴσθησις μὲν ἀναιρεῖται, αἰσθητὸν
5 δὲ ἔσται, οἷον σῶμα, θερμόν, γλυκύ, πικρόν, καὶ
τἆλλα πάντα ὅσα ἐστὶν αἰσθητά.

seems that the object of knowledge is prior to, exists before, knowledge. We gain knowledge, commonly speaking, of things that already exist, for in very few cases or none can our knowledge have come into being along with its own proper object.

Should the object of knowledge be removed, then the knowledge itself will be cancelled. The converse of this is not true. If the object no longer exists, there can no longer be any knowledge, there being now nothing to know. If, however, of this or that object no knowledge has yet been acquired, yet that object itself may exist. Take the squaring of the circle, for instance, if that can be called such an object. Although it exists as an object, the knowledge does not yet exist. If all animals ceased to exist, there would then be no knowledge at all, though there might in that case, notwithstanding, be still many objects of knowledge.

The same may be said of perception. The object, I mean, would appear to be prior to the act of perception. Suppose that you cancel the perceptible ; you cancel the perception as well. Take away or remove the perception, the perceptible still may exist. For the act of perception implies or involves, first, a body perceived, then a body in which it takes place. Therefore, if you remove the perceptible, body itself is removed, for the body itself is perceptible. And, body not being existent, perception must cease to exist. Take away the perceptible, then, and you take away also perception. But the taking away of perception does not take such objects away. If the animal itself is destroyed, then perception is also destroyed. But perceptibles yet will remain, such as body, heat, sweetness and bitterness and everything else that is sensible.

8 a Ἔτι ἡ μὲν αἴσθησις ἅμα τῷ αἰσθητικῷ γίνεται· ἅμα γὰρ τῷ ζῴῳ γίνεται καὶ αἴσθησις· τὸ δέ γε αἰσθητόν ἐστι καὶ πρὸ τοῦ ζῷον ἢ αἴσθησιν εἶναι· πῦρ γὰρ καὶ ὕδωρ καὶ τὰ τοιαῦτα, ἐξ ὧν καὶ τὸ ζῷον συνίσταται, ἔστι καὶ πρὸ τοῦ ζῷον ὅλως εἶναι ἢ αἴσθησιν, ὥστε πρότερον ἂν τῆς αἰσθήσεως τὸ αἰσθητὸν εἶναι δόξειεν.

Ἔχει δὲ ἀπορίαν πότερον οὐδεμία οὐσία τῶν πρός τι λέγεται, καθάπερ δοκεῖ, ἢ τοῦτο ἐνδέχεται κατά τινας τῶν δευτέρων οὐσιῶν. ἐπὶ μὲν γὰρ τῶν πρώτων οὐσιῶν ἀληθές ἐστιν· οὔτε γὰρ τὰ ὅλα οὔτε τὰ μέρη πρός τι λέγεται. ὁ γάρ τις ἄνθρωπος οὐ λέγεται τινός τις ἄνθρωπος, οὐδὲ ὁ τὶς βοῦς τινός τις βοῦς. ὡσαύτως δὲ καὶ τὰ μέρη· ἡ γάρ τις χεὶρ οὐ λέγεται τινός τις χεὶρ ἀλλά τινος χείρ, καὶ ἡ τὶς κεφαλὴ οὐ λέγεται τινός τις κεφαλὴ ἀλλά τινος κεφαλή. ὡσαύτως δὲ καὶ ἐπὶ τῶν δευτέρων οὐσιῶν, ἐπί γε τῶν πλείστων, οἷον ὁ ἄνθρωπος οὐ λέγεται τινὸς ἄνθρωπος, οὐδὲ ὁ βοῦς τινὸς βοῦς, οὐδὲ τὸ ξύλον τινὸς ξύλον, ἀλλά τινος κτῆμα λέγεται. ἐπὶ μὲν οὖν τῶν τοιούτων φανερὸν ὅτι οὐκ ἔστι τῶν πρός τι· ἐπ' ἐνίων δὲ τῶν δευτέρων οὐσιῶν ἔχει ἀμφισβήτησιν, οἷον ἡ κεφαλὴ τινὸς λέγεται κεφαλὴ καὶ ἡ χεὶρ τινὸς λέγεται χεὶρ καὶ ἕκαστον τῶν τοιούτων, ὥστε ταῦτα τῶν πρός τι δόξειεν ἂν εἶναι. εἰ μὲν οὖν ἱκανῶς ὁ τῶν πρός τι ὁρισμὸς ἀποδέδοται, ἢ τῶν

Perception, further, comes into being along with the subject perceiving—that is, with the live thing itself. The perceptible, however, is prior to the animal and to perception. For such things as water and fire, out of which are composed living beings, exist before any such beings and prior to all acts of perception. The perceptible, so we conclude, would appear to be prior to perception.

The view that no substance is relative—a view that is commonly held—would appear to be open to question. Exception, perhaps, should be made in the case of some secondary substances. Doubtless, the view we refer to holds good of the primary substance, for neither the wholes nor the parts of first substances ever are relative. This man or that ox, for example, is never defined with a reference to something beyond or outside. And the same also holds of their parts. Thus a certain hand or head is not said to be a certain hand of someone or other, a certain head of someone or other. We call them *the* hand and *the* head of this specified person or that. So, too, with the secondary substances, at least with the vast generality. Species, like 'man,' 'ox' and so forth, are never defined with a reference to something beyond or outside them. Neither is 'wood' so defined, and, if wood is regarded as relative, then is it so as a *property*, belonging to someone or other, and not in its character of wood. It is evident, then, in such cases that substance can hardly be relative. Opinions, however, may differ in the case of some secondary substances. Thus we define 'head' and 'hand' in the light of the wholes they belong to, and so these might seem to be relative. Indeed, it would prove very hard, not to say an impossible task,

πάνυ χαλεπῶν ἢ τῶν ἀδυνάτων ἐστὶ τὸ δεῖξαι ὡς οὐδεμία οὐσία τῶν πρός τι λέγεται· εἰ δὲ μὴ ἱκανῶς, ἀλλ' ἔστι τὰ πρός τι οἷς τὸ εἶναι ταὐτόν ἐστι τῷ πρός τί πως ἔχειν, ἴσως ἂν ῥηθείη τι πρὸς αὐτά. ὁ δὲ πρότερος ὁρισμὸς παρακολουθεῖ μὲν πᾶσι τοῖς πρός τι, οὐ μὴν ταὐτόν γέ ἐστι τῷ πρός τι αὐτοῖς εἶναι τὸ αὐτὰ ἅπερ ἐστὶν ἑτέρων λέγεσθαι.

Ἐκ δὲ τούτων δῆλόν ἐστιν ὅτι ἐάν τις εἰδῇ τι ὡρισμένως τῶν πρός τι, κἀκεῖνο πρὸς ὃ λέγεται ὡρισμένως εἴσεται. φανερὸν μὲν οὖν καὶ ἐξ αὐτῶν ἐστίν. εἰ γὰρ οἶδέ τις τόδε τι ὅτι ἔστι τῶν πρός τι, ἔστι δὲ τὸ εἶναι τοῖς πρός τι ταὐτὸν τῷ πρός τί πως ἔχειν, κἀκεῖνο οἶδε πρὸς ὃ τοῦτό πως ἔχει· εἰ γὰρ οὐκ οἶδεν ὅλως πρὸς ὃ τοῦτό πως ἔχει, οὐδ' εἰ πρός τί πως ἔχει εἴσεται. καὶ ἐπὶ τῶν καθ' ἕκαστα δὲ δῆλον τὸ τοιοῦτον, οἷον τόδε τι εἰ οἶδε ἀφωρισμένως ὅτι ἔστι διπλάσιον, καὶ ὅτου διπλάσιόν ἐστιν εὐθὺς ἀφωρισμένως οἶδεν· εἰ γὰρ μηδενὸς τῶν ἀφωρισμένων οἶδεν αὐτὸ διπλάσιον, οὐδ' εἰ διπλάσιόν ἐστιν ὅλως οἶδεν. ὡσαύτως δὲ καὶ τόδε τι εἰ οἶδεν ὅτι κάλλιόν ἐστι, καὶ ὅτου κάλλιόν ἐστιν εὐθὺς ἀφωρισμένως ἀναγκαῖον εἰδέναι διὰ ταῦτα. οὐκ ἀορίστως δὲ εἴσεται ὅτι τοῦτό ἐστι χείρονος κάλλιον· ὑπόληψις γὰρ τὸ

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[a] There seems to be something wrong here with the text.

thus to show that *no* substance is relative, if we correctly defined what was meant by a relative term. On the other hand, if we were wrong, if those things are true relatives only, whose very existence consists in their being in some way or other related to some other object, then something, I think, might be said. The former definition applies to all relatives beyond any doubt; but the fact that a thing is explained by a reference to something outside it is not the same thing as to say that it is of necessity relative.[a]

From what we have said this is plain: if a relative is definitely known, that to which it is relative also will then be as definitely known. What is more, we may call this self-evident. Provided, that is, that you know a particular thing to be relative, relatives being those objects whose very existence consists in their being in some way or other related to some other thing, then you know what that other thing is to which that thing itself is related. For if you did not know at all that to which it is somehow related, you could not so much as know whether it was or it was not a relative. Take some particular instances; then will the point be quite clear. For suppose that you definitely know a particular thing to be 'double'; then at once will you definitely know also that thing of which it is double. You cannot know *that* it is double *without* knowing that it is double of something specific and definite. Again, if you definitely know a particular thing is more beautiful, at once must you definitely know that than which it is reckoned more beautiful. Thus you will not vaguely know that particular thing has more beauty than something possessing less beauty. For that would be mere

8 b τοιοῦτο γίνεται, οὐκ ἐπιστήμη· οὐ γὰρ ἔτι ἀκριβῶς εἴσεται ὅτι ἐστὶ χείρονος κάλλιον. εἰ γὰρ οὕτως ἔτυχεν, οὐδέν ἐστι χεῖρον αὐτοῦ. ὥστε φανερὸν ὅτι ἀναγκαῖόν ἐστιν, ὃ ἂν εἰδῇ τις τῶν πρός τι ἀφωρισμένως, κἀκεῖνο πρὸς ὃ λέγεται ἀφωρισμένως εἰδέναι.

Τὴν δέ γε κεφαλὴν καὶ τὴν χεῖρα καὶ ἕκαστον τῶν τοιούτων, ἅ εἰσιν οὐσίαι, αὐτὸ μὲν ὅπερ ἐστὶν ὡρισμένως ἔστιν εἰδέναι, πρὸς ὃ δὲ λέγεται, οὐκ ἀναγκαῖον. τίνος γὰρ αὕτη ἡ κεφαλὴ ἢ τίνος ἡ χείρ, οὐκ ἔστιν εἰδέναι ὡρισμένως. ὥστε οὐκ ἂν εἴη ταῦτα τῶν πρός τι. εἰ δὲ μή ἐστι ταῦτα τῶν πρός τι, ἀληθὲς ἂν εἴη λέγειν ὅτι οὐδεμία οὐσία τῶν πρός τί ἐστιν. ἴσως δὲ χαλεπὸν ὑπὲρ τῶν τοιούτων σφοδρῶς ἀποφαίνεσθαι μὴ πολλάκις ἐπεσκεμμένον· τὸ μέντοι διηπορηκέναι ἐφ' ἑκάστου αὐτῶν οὐκ ἄχρηστόν ἐστιν.

VIII. Ποιότητα δὲ λέγω καθ' ἣν ποιοί τινες εἶναι λέγονται. ἔστι δὲ ἡ ποιότης τῶν πλεοναχῶς λεγομένων. ἓν μὲν οὖν εἶδος ποιότητος ἕξις καὶ διάθεσις λεγέσθωσαν. διαφέρει δὲ ἕξις διαθέσεως τῷ πολὺ χρονιώτερον εἶναι καὶ μονιμώτερον. τοιαῦται δὲ αἵ τε ἐπιστῆμαι καὶ αἱ ἀρεταί· ἥ τε γὰρ ἐπιστήμη δοκεῖ τῶν παραμονίμων εἶναι καὶ δυσκινήτων, ἐὰν καὶ μετρίως τις ἐπιστήμην λάβῃ, ἐάν περ μὴ μεγάλη μεταβολὴ γένηται ὑπὸ νόσου ἢ ἄλλου τινὸς τοιούτου· ὡσαύτως δὲ καὶ ἡ ἀρετή, οἷον ἡ δικαιοσύνη καὶ ἡ σωφροσύνη καὶ ἕκαστον τῶν τοιούτων, οὐκ εὐκίνητον δοκεῖ εἶναι οὐδ'

supposition and not really knowledge at all; you would no longer certainly know that a thing was possessed of more beauty than something possessed of less beauty. For, indeed, it might happen that nothing existed possessing less beauty. From all this, I think, it is plain that a definite knowledge of relatives means a like knowledge of those things whereto they stand in a relation.

Yet a head or a hand is a substance, and men can have definite knowledge what such things essentially are, though without of necessity knowing to what they are also related. For *whose* is this head or this hand, that they cannot determinately know. But, if so, we are forced to conclude that these things and their like are not relatives, and, this being so, it would be true to affirm that no substance is relative. I think it is no easy matter to dogmatize over such problems without more exhaustive inquiry. To bring up the points in detail is, however, not itself wholly useless.

VIII. To quality let us turn next. By ‘ quality ’ I mean that in virtue of which men are called such and such. The word ‘ quality ’ has many senses. Let habits and dispositions here constitute one kind of quality. The former are unlike the latter in being more lasting and stable. Comprised among what we call ‘ habits ’ are virtues and all kinds of knowledge. For knowledge is considered as lasting and hard to displace from the mind, though a man may, in fact, have acquired it in only a moderate measure, unless some great change should come over him, thanks to disease or the like. And the same will hold good of the virtues—for instance, of temperance, justice. For these are allowed on all hands

8b εὐμετάβολον. διαθέσεις δὲ λέγονται ἅ ἐστιν εὐκίνητα καὶ ταχὺ μεταβάλλοντα, οἷον θερμότης καὶ κατάψυξις καὶ νόσος καὶ ὑγίεια καὶ ὅσα ἄλλα τοιαῦτα· διάκειται μὲν γάρ πως κατὰ ταύτας ὁ ἄνθρωπος, ταχὺ δὲ μεταβάλλει ἐκ θερμοῦ ψυχρὸς 9a γενόμενος καὶ ἐκ τοῦ ὑγιαίνειν εἰς τὸ νοσεῖν, ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων, εἰ μή τις καὶ αὐτῶν τούτων τυγχάνοι διὰ χρόνου πλῆθος ἤδη πεφυσιωμένη καὶ ἀνίατος ἢ πάνυ δυσκίνητος οὖσα, ἣν ἄν τις ἴσως ἕξιν ἤδη προσαγορεύοι. φανερὸν 5 δὲ ὅτι ταῦτα βούλονται ἕξεις λέγειν, ἅ ἐστι πολυχρονιώτερα καὶ δυσκινητότερα· τοὺς γὰρ τῶν ἐπιστημῶν μὴ πάνυ κατέχοντας ἀλλ' εὐκινήτους ὄντας οὔ φασιν ἕξιν ἔχειν, καίτοι διάκεινταί γέ πως κατὰ τὴν ἐπιστήμην ἢ χεῖρον ἢ βέλτιον. ὥστε διαφέρει ἕξις διαθέσεως τῷ τὴν μὲν εὐκίνητον εἶναι, τὴν δὲ 10 πολυχρονιωτέραν τε καὶ δυσκινητοτέραν. εἰσὶ δὲ αἱ μὲν ἕξεις καὶ διαθέσεις, αἱ δὲ διαθέσεις οὐκ ἐξ ἀνάγκης ἕξεις· οἱ μὲν γὰρ ἕξεις ἔχοντες καὶ διάκεινταί γέ πως κατ' αὐτάς, οἱ δὲ διακείμενοι οὐ πάντως καὶ ἕξιν ἔχουσιν.

Ἕτερον δὲ γένος ποιότητος καθ' ὃ πυκτικοὺς ἢ 15 δρομικοὺς ἢ ὑγιεινοὺς ἢ νοσώδεις λέγομεν, καὶ ἁπλῶς ὅσα κατὰ δύναμιν φυσικὴν ἢ ἀδυναμίαν λέγεται. οὐ γὰρ τῷ διακεῖσθαί γέ πως ἕκαστον τῶν τοιούτων ποιὸν λέγεται, ἀλλὰ τῷ δύναμιν 20 ἔχειν φυσικὴν ἢ ἀδυναμίαν τοῦ ποιῆσαί τι ῥᾳδίως

to be hard to dislodge or displace. Dispositions, however, are qualities easy to move or to change, such as heat, cold, disease, health and so on. A man is *disposed* in some manner according to all such conditions but rapidly undergoes change. Being warm, he may soon become cold ; being well, he may soon become sick. So it is with all other dispositions, unless one should chance to become second nature through long lapse of time, proving either inveterate or else, at the least, very hard to displace, when we might, I think, call it a habit.

Those qualities, then, it is clear, men incline to denominate ' habits,' which are by their nature more lasting and are the more hard to displace. Those who cannot at all master knowledge and are of a changeable temper are scarcely described nowadays as possessing the ' habit ' of knowing, although we may say that their minds, when regarded from that point of view, are disposed in a way towards knowledge—I mean, in a better or worse. Thus is habit unlike disposition ; the former is lasting and stable, the latter soon undergoes change. Habits are also dispositions ; dispositions are not always habits. While those who have habits are disposed in some manner or other in consequence, those who are some way disposed have by no means in each case a habit.

By the next kind of quality I mean that which leads us to speak of good boxers, good runners, the healthy or sickly. Indeed, it will cover all terms that denote any natural capacity, any innate incapacity. Not from their being disposed or conditioned in this or that manner, but rather from having a power, which is natural, innate or inborn, or, it may be, the lack of such power to achieve this or that

9 a ἢ μηδὲν πάσχειν, οἷον πυκτικοὶ ἢ δρομικοὶ οὐ τῷ
20 διακεῖσθαί πως λέγονται ἀλλὰ τῷ δύναμιν ἔχειν
φυσικὴν τοῦ ποιῆσαί τι ῥᾳδίως, ὑγιεινοὶ δὲ λέγονται
τῷ δύναμιν ἔχειν φυσικὴν τοῦ μηδὲν πάσχειν ὑπὸ
τῶν τυχόντων ῥᾳδίως, νοσώδεις δὲ τῷ ἀδυναμίαν
ἔχειν φυσικὴν τοῦ μηδὲν πάσχειν ῥᾳδίως ὑπὸ τῶν
25 τυχόντων. ὁμοίως δὲ τούτοις καὶ τὸ σκληρὸν
καὶ τὸ μαλακὸν ἔχει· τὸ μὲν γὰρ σκληρὸν λέγεται
τῷ δύναμιν ἔχειν τοῦ μὴ ῥᾳδίως διαιρεῖσθαι, τὸ δὲ
μαλακὸν τῷ ἀδυναμίαν ἔχειν τοῦ αὐτοῦ τούτου.

Τρίτον δὲ γένος ποιότητος παθητικαὶ ποιότητες
καὶ πάθη. ἔστι δὲ τὰ τοιάδε οἷον γλυκύτης τε καὶ
30 πικρότης καὶ στρυφνότης καὶ πάντα τὰ τούτοις
συγγενῆ, ἔτι δὲ θερμότης καὶ ψυχρότης καὶ λευκότης
καὶ μελανία. ὅτι μὲν οὖν αὗται ποιότητές
εἰσι, φανερόν· τὰ γὰρ δεδεγμένα αὐτὰ ποιὰ λέγεται
κατ' αὐτάς, οἷον τὸ μέλι τῷ γλυκύτητα δεδέχθαι
γλυκὺ λέγεται καὶ τὸ σῶμα λευκὸν τῷ λευκότητα
35 δεδέχθαι· ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων ἔχει.

Παθητικαὶ δὲ ποιότητες λέγονται οὐ τῷ αὐτὰ
9 b τὰ δεδεγμένα τὰς ποιότητας πεπονθέναι τι· οὔτε
γὰρ τὸ μέλι τῷ πεπονθέναι τι λέγεται γλυκύ, οὔτε
τῶν ἄλλων τῶν τοιούτων οὐδέν. ὁμοίως δὲ τούτοις
καὶ ἡ θερμότης καὶ ἡ ψυχρότης παθητικαὶ
5 ποιότητες λέγονται οὐ τῷ αὐτὰ τὰ δεδεγμένα
πεπονθέναι τι, τῷ δὲ κατὰ τὰς αἰσθήσεις ἑκάστην
τῶν εἰρημένων ποιοτήτων πάθους εἶναι ποιητικὴν
παθητικαὶ ποιότητες λέγονται· ἥ τε γὰρ γλυκύτης

thing with ease or avoid a defeat of some kind, do we say men possess such a quality. We call men good boxers or runners not in virtue of some disposition but owing to a natural capacity to do this or that thing with ease. When we speak of the healthy, we mean that such people have powers of resistance, ready, innate, constitutional, against all the commoner ills; when we speak of the sickly, we mean those who seem to possess no such powers. It is thus, too, with hardness and softness. We predicate hardness of that which resists ready disintegration and softness of that which does not.

To continue, the third class contains passive qualities and also affections. Examples are sweetness and bitterness, sourness and all things akin to them; such, too, are coldness and warmth; such are whiteness and blackness and so on. It is evident all these are qualities, seeing that the things that possess them are in consequence called such and such. Just as honey itself contains sweetness and, therefore, is said to be sweet, so the body itself contains whiteness and, therefore, is said to be white. So it is in all similar cases.

The qualities that we call passive are not, indeed, given that name to denote that the things which possess them are thereby in some way affected or undergo change in themselves. Thus we call honey sweet, as we said; but we do not imply that the honey itself is in some way affected. And so with all similar cases. Again, if we take heat and cold, though we call all such qualities passive, we do not imply that the things which admit or possess them are passive. We mean that the qualities mentioned can, one and all, *cause* a sensation. The sense, for

πάθος τι κατὰ τὴν γεῦσιν ἐμποιεῖ καὶ ἡ θερμότης κατὰ τὴν ἁφήν. ὁμοίως δὲ καὶ αἱ ἄλλαι.

Λευκότης δὲ καὶ μελανία καὶ αἱ ἄλλαι χροιαὶ οὐ τὸν αὐτὸν τρόπον τοῖς εἰρημένοις παθητικαὶ ποιότητες λέγονται, ἀλλὰ τῷ αὐτὰς ἀπὸ πάθους γεγονέναι. ὅτι μὲν οὖν γίνονται διὰ πάθος πολλαὶ μεταβολαὶ χρωμάτων, δῆλον· αἰσχυνθεὶς γάρ τις ἐρυθρὸς ἐγένετο καὶ φοβηθεὶς ὠχρὸς καὶ ἕκαστον τῶν τοιούτων· ὥστε καὶ εἴ τις φύσει τῶν τοιούτων τι παθῶν πέπονθεν ἔκ τινων φυσικῶν συμπτωμάτων, τὴν ὁμοίαν χροιὰν εἰκός ἐστιν ἔχειν αὐτόν· ἥτις γὰρ νῦν ἐν τῷ αἰσχυνθῆναι διάθεσις τῶν περὶ τὸ σῶμα ἐγένετο, καὶ κατὰ φυσικὴν σύστασιν ἡ αὐτὴ γένοιτ' ἄν, ὥστε φύσει καὶ τὴν χροιὰν ὁμοίαν γίγνεσθαι. ὅσα μὲν οὖν τῶν τοιούτων συμπτωμάτων ἀπό τινων παθῶν δυσκινήτων καὶ παραμονίμων τὴν ἀρχὴν εἴληφε, παθητικαὶ ποιότητες λέγονται. εἴτε γὰρ ἐν τῇ κατὰ φύσιν συστάσει ὠχρότης ἢ μελανία γεγένηται, ποιότητες λέγονται (ποιοὶ γὰρ κατὰ ταύτας λεγόμεθα), εἴτε διὰ νόσον μακρὰν ἢ διὰ καῦμα τὸ αὐτὸ τοῦτο συμβέβηκεν ὠχρότης ἢ μελανία, καὶ μὴ ῥᾳδίως ἀποκαθίστανται ἢ καὶ διὰ βίου παραμένουσι, ποιότητες καὶ αὗται λέγονται· ὁμοίως γὰρ ποιοὶ κατὰ ταύτας λεγόμεθα.

Ὅσα δὲ ἀπὸ ῥᾳδίως διαλυομένων καὶ ταχὺ ἀποκαθισταμένων γίνεται, πάθη λέγεται, ποιότητες δὲ οὔ· οὐ γὰρ λέγονται ποιοί τινες κατὰ ταύτας.

example, of taste is affected by sweetness or sourness, by coldness or warmth that of touch. So it is with all qualities like them.

All colours, as whiteness or blackness, are qualities also and passive, but not in the same sense, however, as those we have hitherto mentioned. We give them that name from the fact that they spring from affections or passions. There are numerous changes of colour that clearly arise from affections. When men are ashamed, then they blush ; when alarmed, they turn pale and so on. So much is this really the case that, I think, when a man is by nature disposed towards shame or alarm as arising from a certain concomitance of bodily elements in him, we may not unfairly conclude that he takes on the corrresponding colour. For that state of the bodily elements which for the moment accompanied the feeling of shame or alarm might very well also result from his physical organization, and thus a like colour might also arise in the process of nature. All states of this kind may be, therefore, included among passive qualities, seeing their source can be found in some constant and lasting affection. For whether their source can be found in the bodily organization or in long disease or sunburn, when they cannot be lightly removed and may even endure throughout life, yet a pale and a dusky complexion are always called qualities by us, because we are called such and such from our having that pallor or duskiness.

Conditions, however, arising from causes soon rendered inoperative, if not entirely removed, will be known as affections, not qualities, seeing that no one is called such and such on account of those con-

9 b οὔτε γὰρ ὁ ἐρυθριῶν διὰ τὸ αἰσχυνθῆναι ἐρυθρίας
λέγεται, οὔτε ὁ ὠχριῶν διὰ τὸ φοβηθῆναι ὠχρίας,
ἀλλὰ μᾶλλον πεπονθέναι τι. ὥστε πάθη μὲν τὰ
τοιαῦτα λέγεται, ποιότητες δὲ οὔ.

Ὁμοίως δὲ τούτοις καὶ κατὰ τὴν ψυχὴν παθητικαὶ
35 ποιότητες καὶ πάθη λέγεται. ὅσα γὰρ
ἐν τῇ γενέσει εὐθὺς ἀπό τινων παθῶν δυσκινήτων
γεγένηται, ποιότητες λέγονται, οἷον ἥ τε μανικὴ
10 a ἔκστασις καὶ ἡ ὀργὴ καὶ τὰ τοιαῦτα· ποιοὶ γὰρ
κατὰ ταύτας λέγονται, ὀργίλοι τε καὶ μανικοί.
ὁμοίως δὲ καὶ ὅσαι ἐκστάσεις μὴ φυσικαί, ἀλλ'
ἀπό τινων ἄλλων συμπτωμάτων γεγένηνται δυσαπάλλακτοι
5 ἢ καὶ ὅλως ἀκίνητοι, ποιότητες καὶ τὰ
τοιαῦτα· ποιοὶ γὰρ κατὰ ταύτας λέγονται. ὅσα
δὲ ἀπὸ ταχὺ ἀποκαθισταμένων γίνεται, πάθη
λέγεται, οἷον εἰ λυπούμενός τις ὀργιλώτερός ἐστιν.
οὐδὲ γὰρ λέγεται ὀργίλος ὁ ἐν τῷ τοιούτῳ πάθει
ὀργιλώτερος ὤν, ἀλλὰ μᾶλλον πεπονθέναι τι.
10 ὥστε πάθη μὲν λέγεται τὰ τοιαῦτα, ποιότητες δ' οὔ.

Τέταρτον δὲ γένος ποιότητος σχῆμά τε καὶ ἡ
περὶ ἕκαστον ὑπάρχουσα μορφή, ἔτι δὲ πρὸς τούτοις
εὐθύτης καὶ καμπυλότης, καὶ εἴ τι τούτοις
ὅμοιόν ἐστιν. καθ' ἕκαστον γὰρ τούτων ποιόν τι
15 λέγεται· τῷ[1] γὰρ τρίγωνον ἢ τετράγωνον εἶναι
ποιόν τι λέγεται, καὶ τῷ[1] εὐθὺ ἢ καμπύλον. καὶ
κατὰ τὴν μορφὴν δὲ ἕκαστον ποιόν τι λέγεται.
τὸ δὲ μανὸν καὶ τὸ πυκνὸν καὶ τὸ τραχὺ καὶ τὸ

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[1] τὸ B.

ditions. He who blushes from shame is not, therefore, regarded as naturally ruddy, nor he who becomes pale from fear as one having a pallid complexion. We say 'So-and-so was affected.' Such states are affections, not qualities.

Likewise, there are in the soul passive qualities and also affections. When a man has a temper from birth and its source is in certain affections not easy to change or remove, then we give it the name of a quality. Madness and irascibility and so on are cases in point. For it is on account of such things that we call a man mad or irascible. Likewise, distractions of mind, which, although not innate in themselves, yet arise from a certain concomitance of some other elements in him and seem to be either enduring or at least very hard to remove, are denominated qualities also. For people are called such and such on account of conditions like these. On the contrary, those which arise from some source that is readily healed we shall call by the name of affections, such as being somewhat angry, when vexed. For a man is not known as bad-tempered from being, when vexed, somewhat angry. We say 'Such a man is affected.' Such states are affections, not qualities.

Of quality the fourth kind consists of the forms and the figures of things ; add to these also crookedness, straightness and all other qualities like them. For things are defined by these also as being of such and such nature. And things have a definite nature by being 'triangular,' 'quadrangular,' by being 'straight,' 'crooked' and so on. In virtue, indeed, of its figure or shape is each thing qualified. Rare and dense, rough and smooth, while appearing at

10 a λεῖον δόξειε μὲν ἂν ποιόν τι σημαίνειν, ἔοικε δὲ
ἀλλότρια τὰ τοιαῦτα εἶναι τῆς περὶ τὸ ποιὸν
20 διαιρέσεως· θέσιν γὰρ μᾶλλόν τινα φαίνεται τῶν
μορίων ἑκάτερον δηλοῦν. πυκνὸν μὲν γὰρ τῷ τὰ
μόρια σύνεγγυς εἶναι ἀλλήλοις, μανὸν δὲ τῷ διεστάναι
ἀπ' ἀλλήλων· καὶ λεῖον μὲν τῷ ἐπ' εὐθείας
πως τὰ μόρια κεῖσθαι, τραχὺ δὲ τῷ τὸ μὲν ὑπερέχειν
τὸ δὲ ἐλλείπειν.

25 Ἴσως μὲν οὖν καὶ ἄλλος ἄν τις φανείη τρόπος
ποιότητος, ἀλλ' οἵ γε μάλιστα λεγόμενοι σχεδὸν
οὗτοί εἰσιν.

Ποιότητες μὲν οὖν εἰσὶν αἱ εἰρημέναι, ποιὰ δὲ
τὰ κατὰ ταύτας παρωνύμως λεγόμενα ἢ ὁπωσοῦν
30 ἄλλως ἀπ' αὐτῶν. ἐπὶ μὲν οὖν τῶν πλείστων
καὶ σχεδὸν ἐπὶ πάντων παρωνύμως λέγεται, οἷον
ἀπὸ τῆς λευκότητος λευκὸς καὶ ἀπὸ τῆς γραμματικῆς
γραμματικὸς καὶ ἀπὸ τῆς δικαιοσύνης
δίκαιος, ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων.

Ἐπ' ἐνίων δὲ διὰ τὸ μὴ κεῖσθαι ταῖς ποιότησιν
ὀνόματα οὐκ ἐνδέχεται παρωνύμως ἀπ' αὐτῶν
35 λέγεσθαι οἷον δρομικὸς ἢ πυκτικὸς ὁ κατὰ δύναμιν
10 b φυσικὴν λεγόμενος ἀπ' οὐδεμιᾶς ποιότητος παρωνύμως
λέγεται· οὐ γὰρ κεῖται ὀνόματα ταῖς δυνάμεσι
καθ' ἃς οὗτοι ποιοὶ λέγονται, ὥσπερ ταῖς
ἐπιστήμαις καθ' ἃς πυκτικοὶ ἢ παλαιστρικοὶ κατὰ
διάθεσιν λέγονται· πυκτικὴ γὰρ λέγεται ἐπιστήμη
5 καὶ παλαιστρική, ποιοὶ δ' ἀπὸ τούτων παρωνύμως
οἱ διακείμενοι λέγονται. ἐνίοτε δὲ καὶ ὀνόματος
κειμένου οὐ λέγεται παρωνύμως τὸ κατ' αὐτὴν
ποιὸν λεγόμενον, οἷον ἀπὸ τῆς ἀρετῆς ὁ σπου-

first sight to indicate quality, are foreign, in fact, from that class. They will rather be found to denote a particular position of the parts. Thus we call a thing dense, when the parts that compose it are closely compacted, but rare, when those parts have interstices ; rough, when some parts are projecting, but smooth, when the surface is smooth, upon which, so to speak, lie those parts.

These are the four kinds of quality. Others there possibly may be, but these are those strictly so called.

Qualities, then, are those mentioned. The things that derive their names from them or depend in some other way on them are said to be things qualified in some definite manner or other. In most—indeed, nearly all—cases the names of the qualified things are derived from the names of the qualities. From 'whiteness,' from 'grammar,' from 'justice,' we have 'white,' 'grammatical,' 'just.' So with all other similar cases.

Sometimes, however, the qualities having no names of their own, no derivative names can exist. Thus the name of the runner or boxer, so called from an innate capacity, cannot be derived from a quality. That is to say, such capacities have no particular names, as the sciences have, with a reference to which we call one man a boxer, another a wrestler and so on. By a science we mean a disposition ; each science, too, has its own name, such as boxing, for instance, or wrestling. And those who are that way disposed get their name from the name of the science. Sometimes, moreover, the quality possesses a well-defined name, but the thing that partakes of its nature does not also take its name from it. For instance, a good man is good from possessing the

10 b δαῖος· τῷ γὰρ ἀρετὴν ἔχειν σπουδαῖος λέγεται, ἀλλ' οὐ παρωνύμως ἀπὸ τῆς ἀρετῆς. οὐκ ἐπὶ πολλῶν δὲ τὸ τοιοῦτόν ἐστιν.

Ποιὰ τοίνυν λέγεται τὰ παρωνύμως ἀπὸ τῶν εἰρημένων ποιοτήτων λεγόμενα ἢ ὁπωσοῦν ἄλλως ἀπ' αὐτῶν.

Ὑπάρχει δὲ καὶ ἐναντιότης κατὰ τὸ ποιόν, οἷον δικαιοσύνη ἀδικίᾳ ἐναντίον καὶ λευκότης μελανίᾳ καὶ τἆλλα δὲ ὡσαύτως, καὶ τὰ κατ' αὐτὰς ποιὰ λεγόμενα, οἷον τὸ ἄδικον τῷ δικαίῳ καὶ τὸ λευκὸν τῷ μέλανι. οὐκ ἐπὶ πάντων δὲ τὸ τοιοῦτο· τῷ γὰρ πυρρῷ ἢ ὠχρῷ ἢ ταῖς τοιαύταις χροιαῖς οὐδὲν ἐναντίον ποιοῖς οὖσιν.

Ἔτι δέ, ἐὰν τῶν ἐναντίων θάτερον ᾖ ποιόν, καὶ τὸ λοιπὸν ἔσται ποιόν. τοῦτο δὲ δῆλον προχειριζομένῳ τὰς ἄλλας κατηγορίας, οἷον εἰ ἔστιν ἡ δικαιοσύνη τῇ ἀδικίᾳ ἐναντίον, ποιὸν δὲ ἡ δικαιοσύνη, ποιὸν ἄρα καὶ ἡ ἀδικία· οὐδεμία γὰρ τῶν ἄλλων κατηγοριῶν ἐφαρμόσει τῇ ἀδικίᾳ· οὔτε γὰρ τὸ ποσὸν οὔτε τὸ πρός τι οὔτε ποῦ οὔθ' ὅλως τι τῶν τοιούτων οὐδέν, ἀλλ' ἢ ποιόν. ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων τῶν κατὰ τὸ ποιὸν ἐναντίων.

Ἐπιδέχεται δὲ τὸ μᾶλλον καὶ τὸ ἧττον τὰ ποιά. λευκὸν γὰρ μᾶλλον καὶ ἧττον ἕτερον ἑτέρου λέγεται, καὶ δίκαιον ἕτερον ἑτέρου μᾶλλον. καὶ αὐτὸ δὲ ἐπίδοσιν λαμβάνει· λευκὸν γὰρ ὂν ἔτι ἐνδέχεται λευκότερον γενέσθαι. οὐ πάντα δέ, ἀλλὰ τὰ πλεῖστα. δικαιοσύνη γὰρ δικαιοσύνης εἰ λέγεται μᾶλλον καὶ ἧττον, ἀπορήσειεν ἄν τις· ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων διαθέσεων. ἔνιοι γὰρ διαμφισβητοῦσι περὶ τῶν τοιούτων· δικαιο-

quality, virtue. We do not, however, derive the term, 'good,' from the other term, 'virtue.' Yet this is seldom the case.

Thus those things have a definite quality which have derived their name from it or in some other way depend on it.

Qualities admit contrariety—not in all cases, however. Justice and injustice are contraries, blackness and whiteness and so on. The things that are called such and such on account of their having these qualities also fall into this class. For the just and the unjust are contraries, the black and the white thing and so on. But this is not so in all cases. Red, yellow and similar colours are qualities that have no contraries.

If one of two contraries is a quality, the other is also a quality. This will be clear to whoever examines the rest of the categories. Injustice is contrary to justice, and justice itself is a quality: so, then, is also injustice. For no other category fits it, not quantity, neither relation, nor place, nor, in short, any other. This holds in the case of all contraries that we denominate qualities.

Qualities admit of degrees. For one thing is more white than another; another, again, is less white. And one thing is more just than another. And a thing may get more of a quality; for things that are white may get whiter. This rule, while it holds in most cases, is subject to certain exceptions. For if justice could be more or less justice, certain problems might thereon arise, as is also the case with all qualities which we may call dispositions. And some go so far as to say that these cannot admit of degrees. Health and justice them-

10 b σύνην μὲν γὰρ δικαιοσύνης οὐ πάνυ φασὶ δεῖν
λέγεσθαι μᾶλλον καὶ ἧττον, οὐδὲ ὑγίειαν ὑγιείας,
35 ἧττον μέντοι ἔχειν ἕτερον ἑτέρου ὑγίειαν, καὶ
11 a δικαιοσύνην ἕτερον ἑτέρου, ὡσαύτως δὲ καὶ γραμματικὴν
καὶ τὰς ἄλλας διαθέσεις. ἀλλ' οὖν τά
γε κατὰ ταύτας λεγόμενα ἀναμφισβητήτως ἐπιδέχεται
τὸ μᾶλλον καὶ τὸ ἧττον· γραμματικώτερος
γὰρ ἕτερος ἑτέρου λέγεται καὶ ὑγιεινότερος καὶ
5 δικαιότερος, καὶ ἐπὶ τῶν ἄλλων ὡσαύτως.

Τρίγωνον δὲ καὶ τετράγωνον οὐ δοκεῖ τὸ μᾶλλον
ἐπιδέχεσθαι, οὐδὲ τῶν ἄλλων σχημάτων οὐδέν.
τὰ μὲν γὰρ ἐπιδεχόμενα τὸν τοῦ τριγώνου λόγον
ἢ τὸν τοῦ κύκλου πάνθ' ὁμοίως τρίγωνα ἢ κύκλοι
εἰσί, τῶν δὲ μὴ ἐπιδεχομένων οὐδὲν μᾶλλον ἕτερον
10 ἑτέρου ῥηθήσεται· οὐδὲν γὰρ μᾶλλον τὸ τετράγωνον
τοῦ ἑτερομήκους κύκλος ἐστίν· οὐδέτερον γὰρ ἐπιδέχεται
τὸν τοῦ κύκλου λόγον. ἁπλῶς δέ, ἐὰν
μὴ ἐπιδέχηται ἀμφότερα τὸν τοῦ προκειμένου
λόγον, οὐ ῥηθήσεται τὸ ἕτερον τοῦ ἑτέρου μᾶλλον.
οὐ πάντα οὖν τὰ ποιὰ ἐπιδέχεται τὸ μᾶλλον καὶ
τὸ ἧττον.

15 Τῶν μὲν οὖν εἰρημένων οὐδὲν ἴδιον ποιότητος,
ὅμοια δὲ καὶ ἀνόμοια κατὰ μόνας τὰς ποιότητας
λέγεται· ὅμοιον γὰρ ἕτερον ἑτέρῳ οὐκ ἔστι κατ'
ἄλλο οὐδὲν ἢ καθ' ὃ ποιόν ἐστιν. ὥστε ἴδιον ἂν
εἴη τῆς ποιότητος τὸ ὅμοιον καὶ ἀνόμοιον λέγεσθαι
κατ' αὐτήν.

20 Οὐ δεῖ δὲ ταράττεσθαι, μή τις ἡμᾶς φήσῃ ὑπὲρ
ποιότητος τὴν πρόθεσιν ποιησαμένους πολλὰ τῶν
πρός τι συγκαταριθμεῖσθαι· τὰς γὰρ ἕξεις καὶ
διαθέσεις τῶν πρός τι εἶναι ἐλέγομεν. σχεδὸν γὰρ
ἐπὶ πάντων τῶν τοιούτων τὰ γένη πρός τι λέγεται,

selves, they contend, are not subject to such variations, but people in varying degrees are possessed of health, justice and so on. The same with grammatical knowledge and all dispositions soever. And certainly none can deny that the things that are marked by such qualities have them in more or less measure. This man will know more about grammar, be healthier or juster than that.

Terms that express a thing's figure—'triangular,' 'rectangular' and so on—can hardly admit of degrees. For the objects to which the definition applies of triangle or circle are equally triangular or circular. Others, to which the definition of neither of these things applies, cannot differ themselves in degree. For the square is no more of a circle than is—let us say—the rectangle. To neither of these the definition we give of a circle applies. So, unless, in a word, the definition of the thing or the term thus in question is appropriate to both of the objects, they cannot at all be compared. Not all qualities, then, have degrees.

The aforementioned characteristics are no way peculiar to quality. What is peculiar is this, that we predicate 'like' and 'unlike' with a reference to quality only. For one thing is like to another in respect of some quality only. So this is distinctive of quality.

It must not cause us trouble, however, if someone objects to our statements that, quality being our theme, we include in that category also a good many relative terms. For both habits and dispositions we admitted to be relative terms. Now, at least in most cases, it happens that the genera,

11 a τῶν δὲ καθ' ἕκαστα οὐδέν. ἡ μὲν γὰρ ἐπιστήμη, γένος οὖσα, αὐτὸ ὅπερ ἐστὶν ἑτέρου λέγεται (τινὸς γὰρ ἐπιστήμη λέγεται), τῶν δὲ καθ' ἕκαστα οὐδὲν αὐτὸ ὅπερ ἐστὶν ἑτέρου λέγεται, οἷον ἡ γραμματικὴ οὐ λέγεται τινὸς γραμματικὴ οὐδ' ἡ μουσικὴ τινὸς μουσική. ἀλλ' εἰ ἄρα, κατὰ τὸ γένος καὶ αὗται τῶν πρός τι λέγονται, οἷον ἡ γραμματικὴ λέγεται τινὸς ἐπιστήμη, οὐ τινὸς γραμματική, καὶ ἡ μουσικὴ τινὸς ἐπιστήμη λέγεται, οὐ τινὸς μουσική.

Ὥστε αἱ καθ' ἕκαστα οὐκ εἰσὶ τῶν πρός τι. λεγόμεθα δὲ ποιοὶ ταῖς καθ' ἕκαστα· ταύτας γὰρ καὶ ἔχομεν· ἐπιστήμονες γὰρ λεγόμεθα τῷ ἔχειν τῶν καθ' ἕκαστα ἐπιστημῶν τινά. ὥστε αὗται ἂν καὶ ποιότητες εἴησαν, αἱ καθ' ἕκαστα, καθ' ἅς ποτε καὶ ποιοὶ λεγόμεθα· αὗται δὲ οὐκ εἰσὶ τῶν πρός τι. ἔτι εἰ τυγχάνοι τὸ αὐτὸ πρός τι καὶ ποιὸν ὄν, οὐδὲν ἄτοπον ἐν ἀμφοτέροις τοῖς γένεσιν αὐτὸ καταριθμεῖσθαι.

11 b IX. Ἐπιδέχεται δὲ καὶ τὸ ποιεῖν καὶ τὸ πάσχειν ἐναντιότητα καὶ τὸ μᾶλλον καὶ τὸ ἧττον· τὸ γὰρ θερμαίνειν τῷ ψύχειν ἐναντίον καὶ τὸ θερμαίνεσθαι τῷ ψύχεσθαι καὶ τὸ ἥδεσθαι τῷ λυπεῖσθαι, ὥστε ἐπιδέχεται ἐναντιότητα. καὶ τὸ μᾶλλον δὲ καὶ ἧττον· θερμαίνειν γὰρ μᾶλλον καὶ ἧττον ἔστι, καὶ θερμαίνεσθαι μᾶλλον καὶ ἧττον. ἐπιδέχεται οὖν τὸ μᾶλλον καὶ τὸ ἧττον τὸ ποιεῖν καὶ τὸ πάσχειν.

Ὑπὲρ μὲν οὖν τούτων τοσαῦτα λέγεται· εἴρηται δὲ καὶ ὑπὲρ τοῦ κεῖσθαι ἐν τοῖς πρός τι, ὅτι

doubtless, are relative; not so the individuals. Knowledge, the genus, we define by a reference to something beyond it, for knowledge is knowledge *of* something. Particular branches, however, of knowledge are not thus explained. For example, we do not define by a reference to something external a knowledge of grammar or music. For these, if in some sense relations, can only be taken for such in respect of their genus or knowledge. That is to say, we call grammar the knowledge, *not* grammar, of something, and music we call, in like manner, the knowledge, *not* music, of something.

Thus particular branches of knowledge are not to be classed among relatives. People are called such and such from possessing these branches of knowledge. These are the things they possess, being, therefore, called ' knowing ' or ' expert,' and never the genus or knowledge. And, therefore, those branches of knowledge, in virtue of which we are sometimes described as of such and such nature, themselves must come under the category of quality, not of relation. Moreover, if anything happened to be both relation and quality, then it were nowise absurd to include it in both of these categories.

IX. Action and affection (or passion) have contraries and also degrees. That is, heating is contrary to cooling, as also being cooled to being heated or, again, being pleased to being pained. Thus it is they admit contrariety. Moreover, they allow of degrees ; for you can heat or be heated more or less. Hence it follows that both action and affection may admit of variations of degree.

Of these categories so much is stated. Posture or position we spoke of, when dealing before with

11 b παρωνύμως ἀπὸ τῶν θέσεων λέγεται. ὑπὲρ δὲ τῶν λοιπῶν, τοῦ τε ποτὲ καὶ τοῦ ποῦ καὶ τοῦ ἔχειν, διὰ τὸ προφανῆ εἶναι οὐδὲν ὑπὲρ αὐτῶν ἄλλο λέγεται ἢ ὅσα ἐν ἀρχῇ ἐρρέθη, ὅτι τὸ ἔχειν μὲν σημαίνει τὸ ὑποδεδέσθαι, τὸ ὡπλίσθαι, τὸ δὲ ποῦ οἷον ἐν Λυκείῳ, καὶ τὰ ἄλλα δὲ ὅσα ὑπὲρ αὐτῶν ἐρρέθη.

X. Ὑπὲρ μὲν οὖν τῶν προτεθέντων γενῶν ἱκανὰ τὰ εἰρημένα· περὶ δὲ τῶν ἀντικειμένων, ποσαχῶς εἴωθεν ἀντικεῖσθαι, ῥητέον. λέγεται δὲ ἕτερον ἑτέρῳ ἀντικεῖσθαι τετραχῶς, ἢ ὡς τὰ πρός τι, ἢ ὡς τὰ ἐναντία, ἢ ὡς στέρησις καὶ ἕξις, ἢ ὡς κατάφασις καὶ ἀπόφασις. ἀντίκειται δὲ ἕκαστον τῶν τοιούτων ὡς τύπῳ εἰπεῖν ὡς μὲν τὰ πρός τι, οἷον τὸ διπλάσιον τῷ ἡμίσει, ὡς δὲ τὰ ἐναντία, οἷον τὸ κακὸν τῷ ἀγαθῷ, ὡς δὲ τὰ κατὰ στέρησιν καὶ ἕξιν, οἷον τυφλότης καὶ ὄψις, ὡς δὲ κατάφασις καὶ ἀπόφασις, οἷον κάθηται—οὐ κάθηται.

Ὅσα μὲν οὖν ὡς τὰ πρός τι ἀντίκειται, αὐτὰ ἅπερ ἐστὶ τῶν ἀντικειμένων λέγεται ἢ ὁπωσοῦν ἄλλως πρὸς αὐτά, οἷον τὸ διπλάσιον, αὐτὸ ὅπερ ἐστίν, ἑτέρου διπλάσιον λέγεται· τινὸς γὰρ διπλάσιον. καὶ ἡ ἐπιστήμη δὲ τῷ ἐπιστητῷ ὡς τὰ πρός τι ἀντίκειται, καὶ λέγεταί γε ἡ ἐπιστήμη αὐτὸ ὅπερ ἐστὶ τοῦ ἐπιστητοῦ. καὶ τὸ ἐπιστητὸν δὲ αὐτὸ ὅπερ ἐστὶ πρὸς ἀντικείμενον λέγεται, τὴν ἐπιστήμην· τὸ γὰρ ἐπιστητὸν τινὶ λέγεται ἐπιστητόν, τῇ ἐπιστήμῃ. ὅσα οὖν ἀντίκειται ὡς τὰ

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[a] The chapters that follow are commonly regarded by scholars as spurious.

relation. We said that such terms get their names from the attitudes corresponding to them. The rest, that is, time, place and state, are so clear that I need say no more than I said at the very beginning—that a state is intended by terms such as being 'shod,' 'armed' and the like, whereas place is intended by phrases like 'in the Lyceum' and so forth.[a]

X. We have now said enough on the subject of the categories that we proposed, and with opposites next we must deal and the various senses of the word. For we call things opposed in four ways—first of all, as correlatives are, either term of each pair to the other; in the next place, as contraries are; in the third place, as privatives to positives; lastly, as affirmatives to negatives. Speaking in outline, I mean that correlatives that are opposed are expressions like 'double' and 'half,' while of contraries that are opposed we may take 'good' and 'bad' for examples. Of privative and positive terms we may here mention 'blindness' and 'sight,' 'he is sitting' and 'he is not sitting' in the case of affirmatives and negatives.

Opposites, when relatives also, our custom it is to explain by referring the one to the other and using the genitive case or some other grammatical construction. Thus 'double,' a relative term, is explained as the double of something. And knowledge, a relative term, is opposed to the thing that is known and explained by a reference to it. The thing that is known is explained by a reference to its opposite, to knowledge: for the thing that is known will be known *by* a something—more precisely, by knowledge. All opposites, then, are

πρός τι, αὐτὰ ἅπερ ἐστὶν ἑτέρων λέγεται ἢ ὁπωσδήποτε πρὸς ἄλληλα λέγεται.

Τὰ δὲ ὡς τὰ ἐναντία, αὐτὰ μὲν ἅπερ ἐστὶν οὐδαμῶς πρὸς ἄλληλα λέγεται, ἐναντία μέντοι ἀλλήλων λέγεται· οὔτε γὰρ τὸ ἀγαθὸν τοῦ κακοῦ λέγεται ἀγαθόν, ἀλλ᾽ ἐναντίον, οὔτε τὸ λευκὸν τοῦ μέλανος λευκόν, ἀλλ᾽ ἐναντίον. ὥστε διαφέρουσιν αὗται αἱ ἀντιθέσεις ἀλλήλων. ὅσα δὲ τῶν ἐναντίων τοιαῦτά ἐστιν ὥστε ἐν οἷς πέφυκε γίνεσθαι ἢ ὧν κατηγορεῖται ἀναγκαῖον αὐτῶν θάτερον ὑπάρχειν, τούτων οὐδέν ἐστιν ἀνὰ μέσον. ὧν δέ γε μὴ ἀναγκαῖον θάτερον ὑπάρχειν, τούτων ἔστι τι ἀνὰ μέσον πάντως, οἷον νόσος καὶ ὑγίεια ἐν σώματι ζῴου πέφυκε γίνεσθαι, καὶ ἀναγκαῖόν γε θάτερον ὑπάρχειν τῷ τοῦ ζῴου σώματι, ἢ νόσον ἢ ὑγίειαν. καὶ περιττὸν δὲ καὶ ἄρτιον ἀριθμοῦ κατηγορεῖται, καὶ ἀναγκαῖόν γε θάτερον τῷ ἀριθμῷ ὑπάρχειν, ἢ περιττὸν ἢ ἄρτιον. καὶ οὐκ ἔστι γε τούτων οὐδὲν ἀνὰ μέσον, οὔτε νόσου καὶ ὑγιείας οὔτε περιττοῦ καὶ ἀρτίου. ὧν δέ γε μὴ ἀναγκαῖον θάτερον ὑπάρχειν, τούτων ἔστι τι ἀνὰ μέσον, οἷον μέλαν καὶ λευκὸν ἐν σώματι πέφυκε γίνεσθαι, καὶ οὐκ ἀναγκαῖόν γε θάτερον αὐτῶν ὑπάρχειν τῷ σώματι· οὐ γὰρ πᾶν ἤτοι λευκὸν ἢ μέλαν ἐστίν. καὶ φαῦλον δὲ καὶ σπουδαῖον κατηγορεῖται μὲν καὶ κατ᾽ ἀνθρώπου καὶ κατὰ ἄλλων πολλῶν, οὐκ ἀναγκαῖον δὲ θάτερον αὐτῶν ὑπάρχειν ἐκείνοις ὧν ἂν κατηγορῆται· οὐ γὰρ πάντα ἤτοι φαῦλα ἢ σπουδαῖά ἐστιν. καὶ ἔστι γέ τι τούτων ἀνὰ μέσον, οἷον τοῦ μὲν λευκοῦ καὶ

explained by referring the one to the other and using the genitive case or some other grammatical construction, when these are correlatives also.

Opposites are no way dependent, when contraries, the one upon the other but are contrary one to the other. The good is not called, for example, the good of the bad but its contrary. Similarly, white is not known as the white of the black but its contrary. Thus these two kinds of opposition are entirely distinct from one another. But contraries such that the subjects in which they are naturally found or of which they can be predicated must needs contain the one or the other—these never can have intermediates. When there is no such necessity, then the reverse is the case, and they always will have an intermediate. For example, both health and disease may be said to be naturally present in the bodies of all living things, and in consequence one or the other must be present in animal bodies. We predicate both odd and even in similar manner of number; in consequence, one or the other must always be present in number. Now, health and disease, odd and even, have no intermediate between them. But where there is no such necessity, then the reverse is the case. For example, both blackness and whiteness are naturally present in body, but neither need be in a body. For not every body existing must either be black or be white. Then we predicate goodness and badness of man, as of many things else. Neither goodness nor badness, however, although they are predicated of them, is present of necessity in them. Not all things are good or are bad. Now, such contraries have intermediates. Between black and white, for example, are sallow and

μέλανος τὸ φαιὸν καὶ τὸ ὠχρὸν καὶ ὅσα ἄλλα χρώματα, τοῦ δὲ φαύλου καὶ σπουδαίου τὸ οὔτε φαῦλον οὔτε σπουδαῖον. ἐπ' ἐνίων μὲν οὖν ὀνόματα κεῖται τοῖς ἀνὰ μέσον, οἷον λευκοῦ καὶ μέλανος τὸ φαιὸν καὶ τὸ ὠχρὸν καὶ ὅσα ἄλλα χρώματα· ἐπ' ἐνίων δὲ ὀνόματι μὲν οὐκ εὔπορον τὸ ἀνὰ μέσον ἀποδοῦναι, τῇ δ' ἑκατέρου τῶν ἄκρων ἀποφάσει τὸ ἀνὰ μέσον ὁρίζεται, οἷον τὸ οὔτε ἀγαθὸν οὔτε κακὸν καὶ οὔτε δίκαιον οὔτε ἄδικον.

Στέρησις δὲ καὶ ἕξις λέγεται μὲν περὶ ταὐτόν τι, οἷον ἡ ὄψις καὶ ἡ τυφλότης περὶ ὀφθαλμόν· καθόλου δὲ εἰπεῖν, ἐν ᾧ ἡ ἕξις πέφυκε γίνεσθαι, περὶ τοῦτο λέγεται ἑκάτερον αὐτῶν. ἐστερῆσθαι δὲ τότε λέγομεν ἕκαστον τῶν τῆς ἕξεως δεκτικῶν, ὅταν ἐν ᾧ πέφυκεν ὑπάρχειν καὶ ὅτε πέφυκεν ἔχειν μηδαμῶς ὑπάρχῃ. νωδόν τε γὰρ λέγομεν οὐ τὸ μὴ ἔχον ὀδόντας, καὶ τυφλὸν οὐ τὸ μὴ ἔχον ὄψιν, ἀλλὰ τὸ μὴ ἔχον ὅτε πέφυκεν ἔχειν· τινὰ γὰρ ἐκ γενετῆς οὔτε ὄψιν ἔχει οὔτε ὀδόντας, ἀλλ' οὐ λέγεται οὔτε νωδὰ οὔτε τυφλά.

Τὸ δὲ ἐστερῆσθαι καὶ τὸ τὴν ἕξιν ἔχειν οὐκ ἔστι στέρησις καὶ ἕξις. ἕξις μὲν γάρ ἐστιν ἡ ὄψις, στέρησις δὲ ἡ τυφλότης· τὸ δὲ ἔχειν τὴν ὄψιν οὐκ ἔστιν ὄψις, οὐδὲ τὸ τυφλὸν εἶναι τυφλότης. στέρησις γάρ τίς ἡ τυφλότης ἐστίν, τὸ δὲ τυφλὸν εἶναι ἐστερῆσθαι, οὐ στέρησίς ἐστιν. ἔτι εἰ ἦν ἡ

grey and so forth, while between good and bad we have that which is neither the one nor the other. And some intermediate qualities have their own recognized names. We may take as examples again grey and sallow and similar colours, intermediate between white and black. In some of the cases, however, to name them were no easy matter. We then must define the intermediate as that which is neither extreme—' neither good nor yet bad,' for example, ' neither just nor unjust,' and so forth.

What are called ' privatives ' and ' positives ' refer to identical subjects, as blindness and sight to the eye. It is ever the case with such pairs that we predicate one or the other, wherever the particular ' positive ' is naturally found or produced. Thus we say that what *may* have a faculty then is deprived of that faculty, when it is totally absent and yet should be naturally present and present also at that time. Not what is without teeth or sight do we, therefore, call toothless or blind. But we rather use those terms of that which has not but should have teeth or sight and should have teeth or sight at that time. For, indeed, certain creatures there are which from birth have no teeth or no sight but are not known as toothless or blind.

To possess and to be without faculties cannot be considered the same with the corresponding ' positives ' and ' privatives.' ' Sight ' is, for instance, a ' positive,' ' blindness,' its opposite, a ' privative.' ' Sight ' and ' to have sight,' however, must not be considered identical. So ' to be blind ' is not ' blindness.' For ' blindness,' we said, is a ' privative,' but ' to be blind ' signifies a condition of want or privation. ' To be blind ' is itself not a ' privative.' This may,

12 a 40 τυφλότης ταὐτὸν τῷ τυφλὸν εἶναι, κατηγορεῖτο ἂν ἀμφότερα κατὰ τοῦ αὐτοῦ· ἀλλὰ τυφλὸς μὲν 12 b λέγεται ὁ ἄνθρωπος, τυφλότης δὲ οὐδαμῶς λέγεται ὁ ἄνθρωπος.

Ἀντικεῖσθαι δὲ καὶ ταῦτα δοκεῖ, τὸ ἐστερῆσθαι καὶ τὸ τὴν ἕξιν ἔχειν, ὡς στέρησις καὶ ἕξις· ὁ γὰρ τρόπος τῆς ἀντιθέσεως ὁ αὐτός· ὡς γὰρ ἡ τυφλότης τῇ ὄψει ἀντίκειται, οὕτω καὶ τὸ τυφλὸν εἶναι τῷ 5 ὄψιν ἔχειν ἀντίκειται.

Οὐκ ἔστι δὲ οὐδὲ τὸ ὑπὸ τὴν ἀπόφασιν καὶ κατάφασιν ἀπόφασις καὶ κατάφασις· ἡ μὲν γὰρ κατάφασις λόγος ἐστὶ καταφατικὸς καὶ ἡ ἀπόφασις λόγος ἀποφατικός, τῶν δὲ ὑπὸ τὴν κατάφασιν καὶ 10 ἀπόφασιν οὐδέν ἐστι λόγος. λέγεται δὲ καὶ ταῦτα ἀντικεῖσθαι ἀλλήλοις ὡς κατάφασις καὶ ἀπόφασις· καὶ γὰρ ἐπὶ τούτων ὁ τρόπος τῆς ἀντιθέσεως ὁ αὐτός. ὡς γάρ ποτε ἡ κατάφασις πρὸς τὴν ἀπόφασιν ἀντίκειται, οἷον τὸ κάθηται τῷ οὐ κάθηται, 15 οὕτω καὶ τὸ ὑφ᾽ ἑκάτερον πρᾶγμα ἀντίκειται, τὸ καθῆσθαι τῷ μὴ καθῆσθαι.

Ὅτι δὲ ἡ στέρησις καὶ ἡ ἕξις οὐκ ἀντίκειται ὡς τὰ πρός τι, φανερόν· οὐ γὰρ λέγεται αὐτὸ ὅπερ ἐστὶ τοῦ ἀντικειμένου. ἡ γὰρ ὄψις οὐκ ἔστι τυφλότητος ὄψις, οὐδ᾽ ἄλλως οὐδαμῶς πρὸς αὐτὸ λέγεται. ὡσαύτως δὲ οὐδὲ ἡ τυφλότης λέγοιτ᾽ ἂν τυφλότης 20 ὄψεως, ἀλλὰ στέρησις μὲν ὄψεως ἡ τυφλότης λέγεται, τυφλότης δὲ ὄψεως οὐ λέγεται. ἔτι τὰ πρός τι πάντα πρὸς ἀντιστρέφοντα λέγεται, ὥστε καὶ ἡ τυφλότης εἴπερ ἦν τῶν πρός τι, ἀντέστρεφεν

moreover, be noted, that, if ' to be blind ' could be rightly considered the same thing with ' blindness,' then should we predicate both, without doubt, of identical things. This, however, is never the case. A man may be said to be blind ; yet a man is not said to be blindness.

As ' positives ' and ' privatives ' are opposites, so are possessing a faculty and being in a state of privation. We have the same sort of antithesis. For to be blind and have sight are opposed just as blindness and sight.

What is affirmed in a statement is not of itself affirmation nor what is denied a denial. ' Affirmation ' means ' affirmative statement,' ' denial ' means ' a negative statement.' But what is affirmed or denied in a statement is matter of fact, not a statement, proposition, assertion. It, nevertheless, is the case that the things we affirm and deny are called opposites in the same sense. For we have the same sort of antithesis. Just as the affirmative statement and the negative themselves are opposed—take the two propositions, for instance, ' he sits ' and ' he is not sitting '—so, too, are the facts thus expressed or his sitting, that is, and not sitting.

' Positives ' and ' privatives ' clearly are not in the same sense opposed as are relatives one to the other. We do not explain them, I mean, by referring the one to the other. We do not call sight sight of blindness, nor use any other form of statement that serves to bring out a relation. And blindness, in similar manner, we do not call blindness of sight, but we call it privation of sight. Again, relative terms are reciprocal. Therefore, were blindness a relative,

12 b ἂν κἀκεῖνο πρὸς ὃ λέγεται. ἀλλ' οὐκ ἀντιστρέφει·
25 οὐ γὰρ λέγεται ἡ ὄψις τυφλότητος ὄψις.

Ὅτι δὲ οὐδ' ὡς τὰ ἐναντία ἀντίκειται τὰ κατὰ
στέρησιν καὶ ἕξιν λεγόμενα, ἐκ τῶνδε δῆλον. τῶν
μὲν γὰρ ἐναντίων, ὧν μηδέν ἐστιν ἀνὰ μέσον,
ἀναγκαῖον, ἐν ᾧ πέφυκε γίνεσθαι ἢ ὧν κατ-
30 ηγορεῖται, θάτερον αὐτῶν ὑπάρχειν ἀεί· τούτων
γὰρ οὐδὲν ἦν ἀνὰ μέσον, ὧν θάτερον ἦν ἀναγκαῖον
τῷ δεκτικῷ ὑπάρχειν, οἷον ἐπὶ νόσου καὶ ὑγιείας
καὶ περιττοῦ καὶ ἀρτίου. ὧν δὲ ἔστι τι ἀνὰ μέσον,
οὐδέποτε ἀνάγκη παντὶ ὑπάρχειν θάτερον· οὔτε
γὰρ λευκὸν ἢ μέλαν ἀνάγκη πᾶν εἶναι τὸ δεκτικόν,
οὔτε θερμὸν οὔτε ψυχρόν· τούτων γὰρ ἀνὰ μέσον
35 τι οὐδὲν κωλύει ὑπάρχειν. ἔτι δὲ καὶ τούτων ἦν
τι ἀνὰ μέσον, ὧν μὴ ἀναγκαῖον θάτερον ὑπάρχειν
ἦν τῷ δεκτικῷ, εἰ μὴ οἷς φύσει τὸ ἓν ὑπάρχει,
οἷον τῷ πυρὶ τὸ θερμῷ εἶναι καὶ τῇ χιόνι τὸ
40 λευκῇ. ἐπὶ δὲ τούτων ἀφωρισμένως ἀναγκαῖον
θάτερον ὑπάρχειν, καὶ οὐχ ὁπότερον ἔτυχεν· οὐ
γὰρ ἐνδέχεται τὸ πῦρ ψυχρὸν εἶναι οὐδὲ τὴν χιόνα
13 a μέλαιναν. ὥστε παντὶ μὲν οὐκ ἀνάγκη τῷ δεκτικῷ
θάτερον αὐτῶν ὑπάρχειν, ἀλλὰ μόνον οἷς φύσει τὸ

blindness and sight would reciprocate. This is, however, not so. For we do not call sight sight of blindness.

That 'positives' and 'privatives,' moreover, are not in the same sense opposed as are contraries one to the other seems perfectly clear from the following. When contraries have no intermediate, we saw that the one or the other must ever be present in the subject in which they are naturally found or of which they will serve as the predicates. Where this necessity obtained, then the terms could have no intermediates. Health and disease, odd and even, were mentioned above as examples. But where contraries have an intermediate, no such necessity obtains. It was not every subject that *may* be receptive of black and of white that must, therefore, *be* black or *be* white. And the same, too, with coldness and heat. That is, something or other intermediate between black and white may be present, between hot and cold and the like. (Moreover, we have already seen that those contraries had an intermediate, where it was not a necessity that one of the two should be inherent in everything capable of receiving them.) An exception must, however, be made where one contrary naturally inheres. To be hot is the nature of fire, and the nature of snow to be white. In such cases, then, *one* of the contraries needs must be definitely present, *not* one *or* the other, in things. It is out of the question that fire should be cold or that snow should be black. Hence it follows that one of the contraries need not be present in all things that may be receptive of such. It is present of necessity only in the subjects in which it inheres. And, moreover,

ἓν ὑπάρχει, καὶ τούτοις ἀφωρισμένως τὸ ἓν καὶ οὐχ ὁπότερον ἔτυχεν.

Ἐπὶ δὲ τῆς στερήσεως καὶ τῆς ἕξεως οὐδέτερον τῶν εἰρημένων ἀληθές· οὔτε[1] γὰρ ἀεὶ τῷ δεκτικῷ ἀναγκαῖον θάτερον αὐτῶν ὑπάρχειν· τὸ γὰρ μήπω πεφυκὸς ὄψιν ἔχειν οὔτε τυφλὸν οὔτε ὄψιν ἔχον λέγεται, ὥστε οὐκ ἂν εἴη ταῦτα τῶν τοιούτων ἐναντίων ὧν οὐδέν ἐστιν ἀνὰ μέσον. ἀλλ' οὐδ' ὧν τι ἔστιν ἀνὰ μέσον· ἀναγκαῖον γάρ ποτε παντὶ τῷ δεκτικῷ θάτερον αὐτῶν ὑπάρχειν· ὅταν γὰρ ἤδη πεφυκὸς ᾖ ὄψιν ἔχειν, τότε ἢ τυφλὸν ἢ ὄψιν ἔχον ῥηθήσεται, καὶ τούτων οὐκ ἀφωρισμένως θάτερον, ἀλλ' ὁπότερον ἔτυχεν· οὐ γὰρ ἀναγκαῖον ἢ τυφλὸν ἢ ἔχον ὄψιν εἶναι, ἀλλ' ὁπότερον ἔτυχεν. ἐπὶ δὲ τῶν ἐναντίων, ὧν ἔστι τι ἀνὰ μέσον, οὐδέποτε ἀναγκαῖον ἦν παντὶ θάτερον ὑπάρχειν, ἀλλὰ τισί, καὶ τούτοις ἀφωρισμένως τὸ ἕν. ὥστε δῆλον ὅτι κατ' οὐδέτερον τῶν τρόπων ὡς τὰ ἐναντία ἀντίκειται τὰ κατὰ στέρησιν καὶ ἕξιν ἀντικείμενα.

Ἔτι ἐπὶ μὲν τῶν ἐναντίων, ὑπάρχοντος τοῦ δεκτικοῦ, δυνατὸν εἰς ἄλληλα μεταβολὴν γίνεσθαι, εἰ μή τινι φύσει τὸ ἓν ὑπάρχει, οἷον τῷ πυρὶ τὸ θερμῷ εἶναι· καὶ γὰρ τὸ ὑγιαῖνον δυνατὸν νοσῆσαι καὶ τὸ λευκὸν μέλαν γενέσθαι καὶ τὸ ψυχρὸν θερμόν, καὶ ἐκ σπουδαίου γε φαῦλον καὶ ἐκ φαύλου σπουδαῖον δυνατὸν γενέσθαι. ὁ γὰρ φαῦλος εἰς βελτίους διατριβὰς ἀγόμενος καὶ λόγους κἂν

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[1] οὐδὲ B.

in cases like this it is definitely one or the other, not *either* the one *or* the other, which is of necessity present.

Neither of the foregoing statements holds good of our 'positives' and 'privatives.' Subjects receptive of such are not bound to have one or the other. For what is not yet at the stage when it naturally ought to have sight is not called either seeing or sightless. And 'positives' and 'privatives,' therefore, are not to be classed with those contraries where there is no intermediate. Neither, again, should we class them with contraries having intermediates. For one or the other at times must form part of each possible subject. When a thing should by nature have sight, we shall say that it sees or is blind, indeterminately and not of necessity but whichever it happens to be. It has not of necessity sight; it is not of necessity blind; it must be in one state or the other. But have we not already seen that of contraries having intermediates neither the one nor the other need be found in each possible subject but definitely one of the pair must be present in some of those subjects? That 'positives' and 'privatives,' therefore, are not opposed one to the other in either of the same ways as contraries will be evident from the foregoing.

Of contraries this, too, holds good, that, the subject remaining identical, either may change to the other, unless, indeed, one of those contraries constitutes part of that subject, as heat constitutes part of fire. What is healthy may well become sick, what is white may in time become black, what is cold may in turn become hot. And the good becomes bad, the bad good. For the bad man, when once introduced to new modes both of living and thinking, may improve,

13 a 25 μικρόν γέ τι ἐπιδοίη εἰς τὸ βελτίων εἶναι. ἐὰν
δὲ ἅπαξ κἂν μικρὰν ἐπίδοσιν λάβῃ, φανερὸν ὅτι ἢ
τελέως ἂν μεταβάλοι ἢ πάνυ πολλὴν ἐπίδοσιν
λάβοι· ἀεὶ γὰρ εὐκινητότερος πρὸς ἀρετὴν γίνεται,
κἂν ἡντινοῦν ἐπίδοσιν εἰληφὼς ἐξ ἀρχῆς ᾖ, ὥστε
καὶ πλείω εἰκὸς ἐπίδοσιν αὐτὸν λαμβάνειν. καὶ
30 τοῦτο ἀεὶ γινόμενον τελείως εἰς τὴν ἐναντίαν ἕξιν
ἀποκαθίστησιν, ἐάν περ μὴ χρόνῳ ἐξείργηται. ἐπὶ
δέ γε τῆς ἕξεως καὶ τῆς στερήσεως ἀδύνατον εἰς
ἄλληλα μεταβολὴν γενέσθαι. ἀπὸ μὲν γὰρ τῆς ἕξεως
ἐπὶ τὴν στέρησιν γίνεται μεταβολή, ἀπὸ δὲ τῆς στερήσεως
35 ἐπὶ τὴν ἕξιν ἀδύνατον. οὔτε γὰρ τυφλὸς γενόμενός
τις πάλιν ἀνέβλεψεν, οὔτε φαλακρὸς ὢν πάλιν
κομήτης ἐγένετο, οὔτε νωδὸς ὢν ὀδόντας ἔφυσεν.

Ὅσα δὲ ὡς κατάφασις καὶ ἀπόφασις ἀντίκειται,
13 b φανερὸν ὅτι κατ᾽ οὐδένα τῶν εἰρημένων τρόπων
ἀντίκειται· ἐπὶ γὰρ μόνων τούτων ἀναγκαῖον ἀεὶ
τὸ μὲν ἀληθὲς τὸ δὲ ψεῦδος αὐτῶν εἶναι. οὔτε
γὰρ ἐπὶ τῶν ἐναντίων ἀναγκαῖον ἀεὶ θάτερον
ἀληθὲς εἶναι θάτερον δὲ ψεῦδος, οὔτε ἐπὶ τῶν πρός
5 τι, οὔτε ἐπὶ τῆς ἕξεως καὶ τῆς στερήσεως. οἷον ἡ
ὑγίεια καὶ ἡ νόσος ἐναντία, καὶ οὐδέτερόν γε οὔτε
ἀληθὲς οὔτε ψεῦδός ἐστιν. ὡσαύτως δὲ καὶ τὸ
διπλάσιον καὶ τὸ ἥμισυ ὡς τὰ πρός τι ἀντίκειται, καὶ
οὐκ ἔστιν αὐτῶν οὐδέτερον οὔτε ἀληθὲς οὔτε ψεῦδος.
οὐδέ γε τὰ κατὰ στέρησιν καὶ ἕξιν, οἷον ἡ ὄψις καὶ
10 ἡ τυφλότης. ὅλως δὲ τῶν κατὰ μηδεμίαν συμπλοκὴν
λεγομένων οὐδὲν οὔτε ἀληθὲς οὔτε ψεῦδός ἐστιν·
πάντα δὲ τὰ εἰρημένα ἄνευ συμπλοκῆς λέγεται.

Οὐ μὴν ἀλλὰ μάλιστα ἂν δόξειε τὸ τοιοῦτο συμ-

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[a] See what was said in c. 4 upon uncombined words, truth and falsity.

be it ever so little. And should such a man once improve, even though it be only a little, he might, it is clear, make great progress or even, indeed, change completely. For ever more easily moved and inclined is a man towards virtue, although in the very first instance he made very little improvement. We naturally, therefore, conclude he will make ever greater advance. And, if so, as the process continues, it will at length change him entirely, provided that time is allowed.

As for ' positives ' and ' privatives,' however, there cannot be change in *both* ways. From possession you may pass to privation but not from the latter to the former. A man who has once become blind never finds that his sight is restored, as a man who has once become bald never after recovers his hair and a man who has once lost his teeth never after can grow a new set.

Affirmations and negations are opposed, it is patent, in none of those ways upon which we have already touched. It is here, and here only, indeed, that one opposite needs must be true, while the other must always be false. In the case of other opposites—contraries, correlatives, positives and privatives—this will in no wise hold good. Thus of health and disease, which are contraries, neither is true, neither false. Take correlatives, ' double ' and ' half.' Again, neither is true, neither false. So also with ' positives ' and ' privatives,' such as are blindness and sight. To sum up, unless words are combined, ' true ' and ' false ' can have no application. And all the afore-mentioned opposites are but mere uncombined words.[a]

However, when words that are contraries consti-

βαίνειν ἐπὶ τῶν κατὰ συμπλοκὴν ἐναντίων λεγομένων· τὸ γὰρ ὑγιαίνειν Σωκράτην τῷ νοσεῖν Σωκράτην ἐναντίον ἐστίν. ἀλλ' οὐδ' ἐπὶ τούτων ἀναγκαῖον ἀεὶ θάτερον μὲν ἀληθὲς θάτερον δὲ ψεῦδος εἶναι. ὄντος μὲν γὰρ Σωκράτους ἔσται τὸ μὲν ἀληθὲς τὸ δὲ ψεῦδος, μὴ ὄντος δὲ ἀμφότερα ψευδῆ· οὔτε γὰρ τὸ νοσεῖν Σωκράτην οὔτε τὸ ὑγιαίνειν ἐστὶν ἀληθὲς αὐτοῦ μὴ ὄντος ὅλως τοῦ Σωκράτους.

Ἐπὶ δὲ τῆς στερήσεως καὶ τῆς ἕξεως μὴ ὄντος τε ὅλως οὐδέτερον ἀληθές, ὄντος τε οὐκ ἀεὶ θάτερον ἀληθὲς θάτερον δὲ ψεῦδος· τὸ γὰρ ὄψιν ἔχειν Σωκράτην τῷ τυφλὸν εἶναι Σωκράτην ἀντίκειται ὡς στέρησις καὶ ἕξις, καὶ ὄντος τε οὐκ ἀναγκαῖον θάτερον ἀληθὲς εἶναι ἢ ψεῦδος (ὅτε γὰρ μήπω πέφυκεν ἔχειν, ἀμφότερα ψευδῆ), μὴ ὄντος τε ὅλως τοῦ Σωκράτους, καὶ οὕτω ψευδῆ ἀμφότερα, καὶ τὸ ὄψιν ἔχειν καὶ τὸ τυφλὸν αὐτὸν εἶναι.

Ἐπὶ δέ γε τῆς καταφάσεως καὶ τῆς ἀποφάσεως ἀεί, ἐάν τε ᾖ ἐάν τε μὴ ᾖ, τὸ ἕτερον ἔσται ψεῦδος καὶ τὸ ἕτερον ἀληθές. τὸ γὰρ νοσεῖν Σωκράτην καὶ τὸ μὴ νοσεῖν Σωκράτην, ὄντος τε αὐτοῦ φανερὸν ὅτι τὸ ἕτερον αὐτῶν ἀληθὲς ἢ ψεῦδος, καὶ μὴ ὄντος ὁμοίως· τὸ μὲν γὰρ νοσεῖν μὴ ὄντος ψεῦδος, τὸ δὲ μὴ νοσεῖν ἀληθές. ὥστε ἐπὶ μόνων τούτων ἴδιον ἂν εἴη τὸ ἀεὶ θάτερον αὐτῶν ἀληθὲς ἢ ψεῦδος εἶναι, ὅσα ὡς κατάφασις καὶ ἀπόφασις ἀντίκειται.

tute parts of those statements opposed as affirmative and negative, these would especially seem to lay claim to this characteristic. The statement that 'Socrates is ill' is the contrary of 'Socrates is well.' Yet we cannot maintain even here that one statement must always be true and the other must always be false. For, if Socrates really exists, one is true and the other is false. But if Socrates does not exist, both the one and the other are false. To say 'he is ill' will be false, and to say 'he is well' will be false, if no Socrates so much as exists.

As for 'positives' and 'privatives,' however, if the subject is not in existence, then neither proposition is true. If the subject exists, even then one will not be true always, one false. That 'Socrates has sight,' for example, is the opposite of 'Socrates is blind' in the sense in which 'opposite' was used as applied to privation and possession. Now, if Socrates really exists, it is not of necessity the case that one statement is true and one false. For he may not as yet have arrived at the stage when a man acquires sight, so that both of the statements are false, as they are, if he does not exist.

To return to affirmation and negation. Of these we may say in all cases that one must be false and one true, be the subject existent or not. For, if Socrates really exists, 'he is ill' *or* 'not ill' must be true; 'he is ill' *or* 'not ill' must be false. And the same, if he does not exist. For, provided he does not exist, it is false to pronounce 'he is ill'; 'he is not ill,' however, is true. Thus that one of the two must be true and the other be false in all cases will hold of those opposites only which are in the same sense opposed as affirmative and negative statements.

13 b XI. Ἐναντίον δέ ἐστιν ἐξ ἀνάγκης ἀγαθῷ μὲν
κακόν· τοῦτο δὲ δῆλον τῇ καθ᾿ ἕκαστον ἐπαγωγῇ,
14 a οἷον ὑγιείᾳ νόσος καὶ ἀνδρείᾳ δειλία, ὁμοίως δὲ
καὶ ἐπὶ τῶν ἄλλων. κακῷ δὲ ὁτὲ μὲν ἀγαθὸν
ἐναντίον, ὁτὲ δὲ κακόν· τῇ γὰρ ἐνδείᾳ κακῷ ὄντι
ἡ ὑπερβολὴ ἐναντίον κακὸν ὄν· ὁμοίως δὲ καὶ ἡ
5 μεσότης ἐναντία ἑκατέρῳ, οὖσα ἀγαθόν. ἐπ᾿
ὀλίγων δ᾿ ἂν τὸ τοιοῦτον ἴδοι τις, ἐπὶ δὲ τῶν
πλείστων ἀεὶ τῷ κακῷ τὸ ἀγαθὸν ἐναντίον ἐστίν.

Ἔτι ἐπὶ τῶν ἐναντίων οὐκ ἀναγκαῖον, ἐὰν θάτε-
ρον ᾖ, καὶ τὸ λοιπὸν εἶναι. ὑγιαινόντων μὲν γὰρ
ἁπάντων ὑγίεια μὲν ἔσται, νόσος δὲ οὔ· ὁμοίως
δὲ καὶ λευκῶν ὄντων ἁπάντων λευκότης μὲν ἔσται,
μελανία δὲ οὔ. ἔτι εἰ τὸ Σωκράτην ὑγιαίνειν τῷ
10 Σωκράτην νοσεῖν ἐναντίον ἐστί, μὴ ἐνδέχεται δὲ
ἅμα ἀμφότερα τῷ αὐτῷ ὑπάρχειν, οὐκ ἂν ἐν-
δέχοιτο τοῦ ἑτέρου τῶν ἐναντίων ὄντος καὶ τὸ
λοιπὸν εἶναι· ὄντος γὰρ τοῦ Σωκράτην ὑγιαίνειν
οὐκ ἂν εἴη τὸ νοσεῖν Σωκράτην.

Δῆλον δὲ ὅτι καὶ περὶ ταὐτὸν ἢ εἴδει ἢ γένει
15 πέφυκε γίνεσθαι τὰ ἐναντία. νόσος μὲν γὰρ καὶ
ὑγίεια ἐν σώματι ζῴου πέφυκε γίνεσθαι, λευκότης
δὲ καὶ μελανία ἁπλῶς ἐν σώματι, δικαιοσύνη δὲ
καὶ ἀδικία ἐν ψυχῇ ἀνθρώπου.

20 Ἀνάγκη δὲ πάντα τὰ ἐναντία ἢ ἐν τῷ αὐτῷ γένει
εἶναι ἢ ἐν τοῖς ἐναντίοις γένεσιν, ἢ αὐτὰ γένη
εἶναι. λευκὸν μὲν γὰρ καὶ μέλαν ἐν τῷ αὐτῷ
γένει (χρῶμα γὰρ αὐτῶν τὸ γένος), δικαιοσύνη δὲ
καὶ ἀδικία ἐν τοῖς ἐναντίοις γένεσιν (τοῦ μὲν γὰρ
ἀρετή, τοῦ δὲ κακία τὸ γένος)· ἀγαθὸν δὲ καὶ

XI. The contrary of good must be evil, and this can be proved by induction. The contrary of health is disease, that of courage is cowardice and so on. Of an evil, however, the contrary is either a good or an evil. For instance, defect is an evil; its contrary, excess, is an evil. But the mean, which is contrary to either in an equal degree, is a good. You, however, find few such exceptions, and, generally speaking, it is true that the contrary of evil is good.

It does not of necessity follow that, if one of the contraries exists, then the other must also exist. For suppose that all things became healthy. There then would be health, not disease. Or suppose that all things became white. There would then be white only, not black. Inasmuch, too, as Socrates ill is the contrary of Socrates well and both contraries cannot exist at one time in the same individual, if one of the contraries existed, the other could not then exist. For, provided he was well was the fact, he was ill could not also be fact.

This point will be evident also: the subjects of contrary qualities must have the same species or genus. For health and disease have for subject the body of some living creature, and whiteness and blackness a body which need not be specified further. And justice, likewise, and injustice arise in the souls of mankind.

In addition, two contrary qualities always belong to one genus or else to the contrary genera, when they are not themselves genera. White, for example, and black will belong to the same genus, colour. Justice, again, and injustice fall under two contrary genera, those we call virtue and vice. Good and evil

14 a 25 κακὸν οὐκ ἔστιν ἐν γένει ἀλλ' αὐτὰ τυγχάνει γένη τινῶν ὄντα.

XII. Πρότερον ἑτέρου ἕτερον λέγεται τετραχῶς, πρῶτον μὲν καὶ κυριώτατα κατὰ χρόνον, καθ' ὃ πρεσβύτερον ἕτερον ἑτέρου καὶ παλαιότερον λέγεται· τῷ γὰρ τὸν χρόνον πλείω εἶναι καὶ πρεσβύτερον καὶ παλαιότερον λέγεται.

30 Δεύτερον δὲ τὸ μὴ ἀντιστρέφον κατὰ τὴν τοῦ εἶναι ἀκολούθησιν, οἷον τὸ ἓν τῶν δύο πρότερον· δυοῖν μὲν γὰρ ὄντων ἀκολουθεῖ εὐθὺς τὸ ἓν εἶναι, ἑνὸς δὲ ὄντος οὐκ ἀναγκαῖον δύο εἶναι, ὥστε οὐκ ἀντιστρέφει ἀπὸ τοῦ ἑνὸς ἡ ἀκολούθησις τοῦ εἶναι τὸ λοιπόν. πρότερον δὲ δοκεῖ τὸ τοιοῦτον εἶναι, 35 ἀφ' οὗ μὴ ἀντιστρέφει ἡ τοῦ εἶναι ἀκολούθησις.

Τρίτον δὲ κατά τινα τάξιν τὸ πρότερον λέγεται, καθάπερ ἐπὶ τῶν ἐπιστημῶν καὶ τῶν λόγων. ἔν τε γὰρ ταῖς ἀποδεικτικαῖς ἐπιστήμαις ὑπάρχει τὸ πρότερον καὶ τὸ ὕστερον τῇ τάξει (τὰ γὰρ στοιχεῖα 14 b πρότερα τῶν διαγραμμάτων τῇ τάξει, καὶ ἐπὶ τῆς γραμματικῆς τὰ στοιχεῖα πρότερα τῶν συλλαβῶν), ἐπί τε τῶν λόγων ὁμοίως· τὸ γὰρ προοίμιον τῆς διηγήσεως πρότερον τῇ τάξει ἐστίν.

~~Ἔτι~~ παρὰ τὰ εἰρημένα τὸ βέλτιον καὶ τὸ τιμιώτερον πρότερον εἶναι τῇ φύσει δοκεῖ. εἰώθασι δὲ 5 καὶ οἱ πολλοὶ τοὺς ἐντιμοτέρους καὶ μᾶλλον ἀγαπωμένους ὑπ' αὐτῶν προτέρους φάσκειν παρ' αὐτοῖς εἶναι. ἔστι μὲν δὴ καὶ σχεδὸν ἀλλοτριώτατος τῶν τρόπων οὗτος.

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[a] ἡ γραμματική, a much wider term in the Greek than is 'grammar' in English. Here it may very well signify reading or writing or both.

belong to no genera, being themselves actual genera, having subordinate species.

XII. There are four different senses in which we may call one thing ' prior ' to another. Whenever we use the term ' prior ' in its proper and primary sense, it is time that we have in our minds. It is thus that we call a thing ' older,' ' more ancient ' than some other thing, signifying that its time has been longer.

Secondly, ' prior ' may be used, when the order of being is fixed and incapable of being reversed. ' One ' is prior, among numbers, to ' two.' For provided, that is, ' two ' exists, then it follows that ' one ' must exist. The existence of ' one,' on the contrary, does not imply that of ' two.' And the order of being, in consequence, cannot be changed and reversed. Thus of two things we call that one ' prior ' which precedes in irreversible sequence.

Thirdly, we use the term ' prior ' in regard to any order whatever. And this is the case in the sciences, as it is also with speeches. In sciences using demonstration we have what is prior in its order and what is, *per contra*, posterior. Take geometrical science : the elements—points, lines and so on—are prior to propositions or problems. And, likewise, in what we call ' grammar '[a] the letters are prior to the syllables. So in the case of a speech will the proem be prior to the narrative.

Besides the three senses aforesaid whatsoever is better, more honourable, is said to be naturally prior. Thus the common folk, speaking of those whom they hold in esteem or affection, describe them as coming first with them or having prior place in their hearts. But this use seems the strangest of all.

Οἱ μὲν οὖν λεγόμενοι τρόποι τοῦ προτέρου σχεδὸν τοσοῦτοί εἰσιν. δόξειε δ' ἂν παρὰ τοὺς εἰρημένους καὶ ἕτερος εἶναι προτέρου τρόπος· τῶν γὰρ ἀντιστρεφόντων κατὰ τὴν τοῦ εἶναι ἀκολούθησιν τὸ αἴτιον ὁπωσοῦν θατέρῳ τοῦ εἶναι πρότερον εἰκότως τῇ φύσει λέγοιτ' ἄν. ὅτι δ' ἔστι τινὰ τοιαῦτα, δῆλον· τὸ γὰρ εἶναι ἄνθρωπον ἀντιστρέφει κατὰ τὴν τοῦ εἶναι ἀκολούθησιν πρὸς τὸν ἀληθῆ περὶ αὐτοῦ λόγον. εἰ γὰρ ἔστιν ἄνθρωπος, ἀληθὴς ὁ λόγος ᾧ λέγομεν ὅτι ἔστιν ἄνθρωπος. καὶ ἀντιστρέφει γε· εἰ γὰρ ἀληθὴς ὁ λόγος ᾧ λέγομεν ὅτι ἔστιν ἄνθρωπος, ἔστιν ἄνθρωπος. ἔστι δὲ ὁ μὲν ἀληθὴς λόγος οὐδαμῶς αἴτιος τοῦ εἶναι τὸ πρᾶγμα, τὸ μέντοι πρᾶγμα φαίνεταί πως αἴτιον τοῦ εἶναι ἀληθῆ τὸν λόγον· τῷ γὰρ εἶναι τὸ πρᾶγμα ἢ μὴ ἀληθὴς ὁ λόγος ἢ ψευδὴς λέγεται. ὥστε κατὰ πέντε τρόπους πρότερον ἕτερον ἑτέρου λέγεται.

XIII. Ἅμα δὲ λέγεται ἁπλῶς μὲν καὶ κυριώτατα, ὧν ἡ γένεσίς ἐστιν ἐν τῷ αὐτῷ χρόνῳ· οὐδέτερον γὰρ πρότερον οὐδὲ ὕστερόν ἐστιν αὐτῶν. ἅμα δὲ κατὰ τὸν χρόνον ταῦτα λέγεται. φύσει δὲ ἅμα, ὅσα ἀντιστρέφει μὲν κατὰ τὴν τοῦ εἶναι ἀκολούθησιν, μηδαμῶς δὲ αἴτιον θάτερον θατέρῳ τοῦ εἶναί ἐστιν, οἷον ἐπὶ τοῦ διπλασίου καὶ τοῦ ἡμίσεος· ἀντιστρέφει μὲν γὰρ ταῦτα (διπλασίου γὰρ ὄντος ἐστὶν ἥμισυ καὶ ἡμίσεος ὄντος διπλάσιόν ἐστιν), οὐδέτερον δὲ οὐδετέρῳ αἴτιον τοῦ εἶναί ἐστιν.

Καὶ τὰ ἐκ τοῦ αὐτοῦ δὲ γένους ἀντιδιῃρημένα ἀλλήλοις ἅμα τῇ φύσει λέγεται. ἀντιδιῃρῆσθαι δὲ λέγεται ἀλλήλοις τὰ κατὰ τὴν αὐτὴν διαίρεσιν,

These, I think, are the four distinct senses in which we may use the term 'prior.' Yet another might seem to exist beyond those we have already mentioned. For where in the case of two things the existence of either implies or necessitates that of the other, that thing which is somehow the cause may, in consequence, fairly be considered as naturally prior to the other. Such cases can clearly be found. The existence of a man, for example, necessitates the truth of the statement wherein we assert his existence. The converse is also the case. For if he exists, then the statement asserting that fact will be true. If the statement, conversely, is true, then the man referred to must exist. The true statement, however, is nowise the cause of the man's thus existing; and yet his existence would seem in some manner or other the cause of the truth of the true proposition. For the latter is called 'true' or 'false,' as the man thus exists or does not. So it seems that we use the term 'prior' in as many as five different senses.

XIII. 'Simultaneous' we use in its primary and most correct meaning of things that have come into being together. For neither in that case is prior, nor is either posterior to the other. We mean 'simultaneous in time.' 'Simultaneous' in nature we apply to those things where the being of either necessitates that of the other but neither is cause of the other. For instance, take 'double' and 'half,' for these two have reciprocal dependence. If a double exists, then a half; if a half exists, also a double. And neither of these is the cause of the other's existence or being.

Species marked off and opposed under one genus each to the others are called 'simultaneous' in nature. I mean those marked off or divided by

14 b οἷον τὸ πτηνὸν τῷ πεζῷ καὶ τῷ ἐνύδρῳ· ταῦτα
γὰρ ἀλλήλοις ἀντιδιῄρηται ἐκ τοῦ αὐτοῦ γένους·
τὸ γὰρ ζῷον διαιρεῖται εἰς ταῦτα, εἴς τε τὸ πτηνὸν
καὶ τὸ πεζὸν καὶ τὸ ἔνυδρον, καὶ οὐδέν γε τούτων
πρότερον ἢ ὕστερόν ἐστιν, ἀλλ' ἅμα τῇ φύσει τὰ
15 a τοιαῦτα δοκεῖ εἶναι. διαιρεθείη δ' ἂν καὶ ἕκαστον
τῶν τοιούτων εἰς εἴδη πάλιν, οἷον τὸ πεζὸν καὶ τὸ
πτηνὸν καὶ τὸ ἔνυδρον. ἔσται οὖν κἀκεῖνα ἅμα
τῇ φύσει, ὅσα ἐκ τοῦ αὐτοῦ γένους κατὰ τὴν
5 αὐτὴν διαίρεσίν ἐστιν. τὰ δὲ γένη τῶν εἰδῶν ἀεὶ
πρότερα· οὐ γὰρ ἀντιστρέφει κατὰ τὴν τοῦ εἶναι
ἀκολούθησιν, οἷον ἐνύδρου μὲν ὄντος ἔστι ζῷον,
ζῴου δὲ ὄντος οὐκ ἀνάγκη ἔνυδρον εἶναι.

Ἅμα οὖν τῇ φύσει λέγεται, ὅσα ἀντιστρέφει
μὲν κατὰ τὴν τοῦ εἶναι ἀκολούθησιν, μηδαμῶς δὲ
10 αἴτιον τὸ ἕτερον τῷ ἑτέρῳ τοῦ εἶναί ἐστι, καὶ τὰ
ἐκ τοῦ αὐτοῦ γένους ἀντιδιῃρημένα ἀλλήλοις·
ἁπλῶς δὲ ἅμα, ὧν ἡ γένεσις ἐν τῷ αὐτῷ χρόνῳ.

XIV. Κινήσεως δέ ἐστιν εἴδη ἕξ, γένεσις, φθορά, αὔξησις, μείωσις, ἀλλοίωσις, ἡ κατὰ τόπον μεταβολή.

15 Αἱ μὲν οὖν ἄλλαι κινήσεις φανερὸν ὅτι ἕτεραι
ἀλλήλων εἰσίν· οὐ γάρ ἐστιν ἡ γένεσις φθορὰ οὐδέ
γε ἡ αὔξησις μείωσις οὐδὲ ἡ κατὰ τόπον μεταβολή,
ὡσαύτως δὲ καὶ αἱ ἄλλαι· ἐπὶ δὲ τῆς ἀλλοιώσεως
ἔχει τινὰ ἀπορίαν, μή ποτε ἀναγκαῖον
20 ᾖ τὸ ἀλλοιούμενον κατά τινα τῶν λοιπῶν κινήσεων
ἀλλοιοῦσθαι. τοῦτο δὲ οὐκ ἀληθές ἐστι· σχεδὸν
γὰρ κατὰ πάντα τὰ πάθη ἢ τὰ πλεῖστα ἀλλοιοῦσθαι
συμβέβηκεν ἡμῖν οὐδεμιᾶς τῶν ἄλλων κινήσεων

identical modes of division. That is to say, the 'winged' species is called 'simultaneous' in nature with both the 'aquatic' and 'terrestrial.' All are marked off and opposed under one genus each to the others. For into these species is 'animal,' the genus,—marked off by division. And none will be prior or posterior; all are in nature 'simultaneous.' Each of these species is further marked off into certain subspecies, which also are called 'simultaneous' in nature for just the same reasons. The genus is prior to the species. That is to say that the order of being cannot be reversed. If the species 'aquatic' exists, then does also the genus or 'animal'; but granted the genus exists, there is not of necessity the species.

Thus we call 'simultaneous' in nature those things where the being of either necessitates that of the other but neither is cause of the other, and also those species marked off and opposed under one genus only. We use 'simultaneous,' too, in its first and unqualified sense of those things that have come into being at one and the same time together.

XIV. There are six kinds of what we call motion—generation, that is, and destruction, increase, diminution, alteration and, finally, changes of place. With a single exception it is plain that all these are distinct from each other. Destruction is not generation, and increase is not diminution, nor yet does it mean change of place. And so also it is with the rest. In the case of alteration, however, it may be objected by some that a subject, when altered, is altered by one of the other five motions. And yet this is not really so. For by all or, at least, most affections alterations are brought about in us that have nought in common whatever with those other motions we

15 a κοινωνοῦσιν· οὔτε γὰρ αὔξεσθαι ἀναγκαῖον τὸ κατὰ πάθος κινούμενον οὔτε μειοῦσθαι, ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων, ὥσθ' ἑτέρα ἂν εἴη παρὰ τὰς ἄλλας κινήσεις ἡ ἀλλοίωσις· εἰ γὰρ ἦν ἡ αὐτή, ἔδει τὸ ἀλλοιούμενον εὐθὺς καὶ αὔξεσθαι ἢ μειοῦσθαι ἤ τινα τῶν ἄλλων ἀκολουθεῖν κινήσεων· ἀλλ' οὐκ ἀνάγκη. ὡσαύτως δὲ καὶ τὸ αὐξανόμενον ἤ τινα ἄλλην κίνησιν κινούμενον ἀλλοιοῦσθαι ἔδει· ἀλλ' ἔστι τινὰ αὐξανόμενα ἃ οὐκ ἀλλοιοῦται, οἷον τὸ τετράγωνον γνώμονος περιτεθέντος ηὔξηται μέν, ἀλλοιότερον δὲ οὐδὲν γεγένηται· ὡσαύτως δὲ καὶ ἐπὶ τῶν ἄλλων τῶν τοιούτων. ὥσθ' ἕτεραι ἂν εἴησαν αἱ κινήσεις ἀλλήλων.

15 b Ἔστι δὲ ἁπλῶς μὲν κινήσει ἠρεμία ἐναντία, ταῖς δὲ καθ' ἕκαστα αἱ καθ' ἕκαστα, γενέσει μὲν φθορά, αὐξήσει δὲ μείωσις, τῇ δὲ κατὰ τόπον μεταβολῇ ἡ κατὰ τόπον ἠρεμία. μάλιστα δ' ἔοικεν ἀντικεῖσθαι ἡ πρὸς τὸν ἐναντίον τόπον μεταβολή, οἷον τῇ κάτωθεν ἡ ἄνω, τῇ δὲ ἄνωθεν ἡ κάτω. τῇ δὲ

mentioned. For that which is thereby affected need not be increased or diminished or undergo any such process. It follows that alteration is different from all other species of motion. For, were it the same with some other, the object, when altered, would straightway be also increased or diminished or undergo some other motion. But that is not so of necessity. Moreover, whatever was increased or was subject to some other motion would be of necessity altered. And yet there are things that increase and are not thereby altered as well. For example, if a gnomon is added, a square is increased in its size but does not undergo alteration, remaining a square as before.[a] So it is with all similar forms. Alteration and increase, it follows, are two distinct species of motion.

Rest is, broadly, the contrary of motion. But particular species of motion have each their particular contraries. Thus change in place may be said to have rest in a place for its contrary, increase will have diminution, generation destruction or corruption. But as for the first of those mentioned, a change to the contrary place would appear in the strictest sense contrary—that is, ascent to descent and descent to ascent and the like. But as for the

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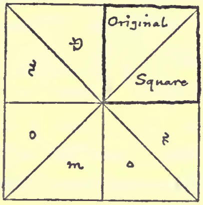
[a] The accompanying figure illustrates what is meant about the square and the Gnomon.



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15 b λοιπῇ τῶν ἀποδοθεισῶν κινήσεων οὐ ῥᾴδιον ἀποδοῦναι τί ποτέ ἐστιν ἐναντίον, ἔοικε δὲ οὐδὲν εἶναι αὐτῇ ἐναντίον, εἰ μή τις καὶ ἐπὶ ταύτης τὴν κατὰ τὸ ποιὸν ἠρεμίαν ἀντιτιθείη ἢ τὴν εἰς τὸ ἐναντίον τοῦ ποιοῦ μεταβολήν, καθάπερ καὶ ἐπὶ τῆς κατὰ τόπον μεταβολῆς τὴν κατὰ τόπον ἠρεμίαν ἢ τὴν εἰς τὸν ἐναντίον τόπον μεταβολήν· ἔστι γὰρ ἡ ἀλλοίωσις μεταβολὴ κατὰ τὸ ποιόν. ὥστε ἀντικείσεται τῇ κατὰ τὸ ποιὸν κινήσει ἡ κατὰ τὸ ποιὸν ἠρεμία ἢ ἡ εἰς τὸ ἐναντίον τοῦ ποιοῦ μεταβολή, οἷον τὸ λευκὸν γίνεσθαι τῷ μέλαν γίνεσθαι· ἀλλοιοῦται γὰρ εἰς τὰ ἐναντία τοῦ ποιοῦ μεταβολῆς γινομένης.

XV. Τὸ δὲ ἔχειν κατὰ πλείονας τρόπους λέγεται. ἢ γὰρ ὡς ἕξιν καὶ διάθεσιν ἢ ἄλλην τινὰ ποιότητα· λεγόμεθα γὰρ καὶ ἐπιστήμην τινὰ ἔχειν καὶ ἀρετήν. ἢ ὡς ποσόν, οἷον ὃ τυγχάνει τις ἔχων μέγεθος· λέγεται γὰρ τρίπηχυ μέγεθος ἔχειν ἢ τετράπηχυ. ἢ ὡς τὰ περὶ τὸ σῶμα, οἷον ἱμάτιον ἢ χιτῶνα. ἢ ὡς ἐν μορίῳ, οἷον ἐν χειρὶ δακτύλιον. ἢ ὡς μέρος, οἷον χεῖρα ἢ πόδα. ἢ ὡς ἐν ἀγγείῳ, οἷον ὁ μέδιμνος τοὺς πυροὺς ἢ τὸ κεράμιον τὸν οἶνον· οἶνον γὰρ ἔχειν τὸ κεράμιον λέγεται, καὶ ὁ μέδιμνος πυρούς· ταῦτ' οὖν πάντα ἔχειν λέγεται ὡς ἐν ἀγγείῳ. ἢ ὡς κτῆμα· ἔχειν γὰρ οἰκίαν ἢ ἀγρὸν λεγόμεθα.

Λεγόμεθα δὲ καὶ γυναῖκα ἔχειν καὶ ἡ γυνὴ ἄνδρα· ἔοικε δὲ ἀλλοτριώτατος ὁ νῦν ῥηθεὶς τρόπος

motion remaining of those we have mentioned above, it were no easy matter to say what its contrary actually is. And, in fact, it appears to have none or, here too, it is 'rest in its quality' or 'change to the contrary quality,' just as we said change of place had for contrary rest in a place or a change to a contrary place. Alteration means change of a quality. Therefore, to qualitative motion we oppose either rest in its quality or change to a contrary quality. Thus black and white will be contraries; therefore, becoming the one will be contrary to becoming the other. There is change of a quality here, which implies alteration, in consequence, into a contrary quality.

XV. 'To have' has a good many meanings. We use it of habits, dispositions and also of all other qualities. Thus we are said to 'have' virtue, to 'have' this or that piece of knowledge. And then it is used of a quantity, such as the height a man has. So it is that we say that a man 'has' a stature of three or four cubits. Again, it is used of apparel; a man 'has' a cloak or a tunic. Moreover, we use it of things that we 'have' on some part of the body, a ring on the finger, for instance. We employ it of parts of the body; a man 'has' a hand or a foot. It is used in the case of a vessel: a jar will be said to 'have' wine and a corn-measure said to 'have[a]' wheat. And in cases like these we are thinking of what is *contained* in the vessel. Once more, we use 'have' of a property, men 'having' houses or fields.

People say that a man 'has' a wife and a wife, in like manner, a husband. This meaning is very

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[a] In English, of course, we say 'hold.'

15 b τοῦ ἔχειν· οὐδὲν γὰρ ἄλλο τῷ ἔχει γυναῖκα σημαίνομεν ἢ ὅτι συνοικεῖ.

Ἴσως δ' ἂν καὶ ἄλλοι τινὲς φανείησαν τοῦ ἔχειν τρόποι· οἱ δὲ εἰωθότες λέγεσθαι σχεδὸν ἅπαντες κατηρίθμηνται.

far-fetched. When we say that a man has a wife, then we mean that he lives with her merely.

There may be more senses of ‘have.’ But the customary meanings, I think, are set forth in the foregoing summary.

ON INTERPRETATION

SUMMARY OF THE PRINCIPAL THEMES

Ch. 1. The relation of language to thought.
    Isolated notions express neither truth nor falsehood.
    Combination of notions or ideas in propositions or judgements essential before truth or error is possible.
Ch. 2. Definition of a noun.
    Nouns simple or composite.
    Indefinite nouns.
    Cases of nouns.
Ch. 3. Definition of a verb.
    Indefinite verbs.
    Tenses of verbs.
Ch. 4. Definition of a sentence.
    Not every sentence a proposition.
Ch. 5. Of simple and complex or composite propositions.
Ch. 6. Of contradictory propositions.
Ch. 7. Of universal, indefinite and particular affirmative and negative propositions.
    Of contrary as opposed to contradictory propositions.
Ch. 8. Definition of single propositions.
Ch. 9. Of propositions referring to the future, as opposed to propositions referring to the present time or to the past.

Ch. 10. Affirmative and negative propositions arranged with a diagram in pairs.
The correct position of the negative (οὐ).
Of the truth and error of certain propositions.
Of propositions with indefinite nouns or indefinite nouns and verbs.
To transpose the subject and predicate makes no difference to the meaning of propositions.

Ch. 11. Some propositions that seem to be simple are really compound.
So are some dialectical questions.
The nature of dialectical questions.
Two simple propositions, which have the same subject, may be true ; but we cannot of necessity combine the two predicates into one predicate.
Several predicates holding of one subject, when taken by themselves and individually, cannot be combined together to make up one simple proposition, unless all are essential to the subject and none is implied in another.

Ch. 12. Of propositions affirming or denying the possible, impossible, contingent and necessary, and of their proper contradictories.

Ch. 13. The relations that subsist between such propositions.
The relation of the actual to the possible.
Three classes of entities.

Ch. 14. Of the proper contrary of an affirmation, whether universal or particular.

ΠΕΡΙ ΕΡΜΗΝΕΙΑΣ

16 a I. Πρῶτον δεῖ θέσθαι τί ὄνομα καὶ τί ῥῆμα, ἔπειτα τί ἐστιν ἀπόφασις καὶ κατάφασις καὶ ἀπόφανσις καὶ λόγος.

Ἔστι μὲν οὖν τὰ ἐν τῇ φωνῇ τῶν ἐν τῇ ψυχῇ παθημάτων σύμβολα, καὶ τὰ γραφόμενα τῶν ἐν τῇ φωνῇ. καὶ ὥσπερ οὐδὲ γράμματα πᾶσι τὰ αὐτά, οὐδὲ φωναὶ αἱ αὐταί· ὧν μέντοι ταῦτα σημεῖα πρώτως, ταὐτὰ πᾶσι παθήματα τῆς ψυχῆς, καὶ ὧν ταῦτα ὁμοιώματα, πράγματα ἤδη ταὐτά. περὶ μὲν οὖν τούτων εἴρηται ἐν τοῖς περὶ ψυχῆς· ἄλλης γὰρ πραγματείας.

Ἔστι δ', ὥσπερ ἐν τῇ ψυχῇ ὁτὲ μὲν νόημα ἄνευ τοῦ ἀληθεύειν ἢ ψεύδεσθαι, ὁτὲ δὲ ἤδη ᾧ ἀνάγκη τούτων ὑπάρχειν θάτερον, οὕτω καὶ ἐν τῇ φωνῇ· περὶ γὰρ σύνθεσιν καὶ διαίρεσίν ἐστι τὸ ψεῦδος

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[a] It is hard to say which is the passage, provided this means the *De Anima*. Dr. W. D. Ross has observed that 'The *De Interpretatione* was suspected by Andronicus, on the ground, apparently, of a reference to the *De Anima* to which nothing in that work corresponds. There are, however, many such references in undoubtedly genuine works of Aristotle, and more than one way of explaining them. There is strong external evidence for its authenticity; Theophrastus and Eudemus both wrote books which seem to presuppose it, and Ammonius tells us that Andronicus

ON INTERPRETATION

I. Let us, first of all, define noun and verb, then explain what is meant by denial, affirmation, proposition and sentence.

Words spoken are symbols or signs of affections or impressions of the soul; written words are the signs of words spoken. As writing, so also is speech not the same for all races of men. But the mental affections themselves, of which these words are primarily signs, are the same for the whole of mankind, as are also the objects of which those affections are representations or likenesses, images, copies. With these points, however, I dealt in my treatise concerning the soul [a]; they belong to a different inquiry from that which we now have in hand.

As at times there are thoughts in our minds unaccompanied by truth or by falsity, while there are others at times that have necessarily one or the other, so also it is in our speech, for combination and division are essential before you can have truth and

was the only critic who cast doubt on it. Finally, its style and grammar seem to be genuinely Aristotelian. All that can really be said against it is that much of it is somewhat elementary; but Aristotle doubtless gave elementary as well as advanced lectures' (*Aristotle*, p. 10). The Provost of Oriel remarks that H. Maier 'suggests that the reference in 16 a 8 should be transferred to 16 a 13 and relates to *De An.* iii. 6.'

καὶ τὸ ἀληθές. τὰ μὲν οὖν ὀνόματα αὐτὰ καὶ τὰ ῥήματα ἔοικε τῷ ἄνευ συνθέσεως καὶ διαιρέσεως νοήματι, οἷον τὸ ἄνθρωπος ἢ τὸ λευκόν, ὅταν μὴ προστεθῇ τι· οὔτε γὰρ ψεῦδος οὔτε ἀληθές πω. σημεῖον δ' ἐστὶ τοῦδε· καὶ γὰρ ὁ τραγέλαφος σημαίνει μέν τι, οὔπω δὲ ἀληθὲς ἢ ψεῦδος, ἐὰν μὴ τὸ εἶναι ἢ μὴ εἶναι προστεθῇ, [a]ἢ ἁπλῶς ἢ κατὰ χρόνον.

II. Ὄνομα μὲν οὖν ἐστὶ φωνὴ σημαντικὴ κατὰ συνθήκην ἄνευ χρόνου, ἧς μηδὲν μέρος ἐστὶ σημαντικὸν κεχωρισμένον· ἐν γὰρ τῷ Κάλλιππος τὸ ἵππος οὐδὲν αὐτὸ καθ' ἑαυτὸ σημαίνει, ὥσπερ ἐν τῷ λόγῳ τῷ καλὸς ἵππος. οὐ μὴν οὐδ' ὥσπερ ἐν τοῖς ἁπλοῖς ὀνόμασιν, οὕτως ἔχει καὶ ἐν τοῖς συμπεπλεγμένοις· ἐν ἐκείνοις μὲν γὰρ τὸ μέρος οὐδαμῶς σημαντικόν, ἐν δὲ τούτοις βούλεται μέν, ἀλλ' οὐδενὸς κεχωρισμένον, οἷον ἐν τῷ ἐπακτροκέλης τὸ κέλης οὐδὲν σημαίνει καθ' ἑαυτό.

Τὸ δὲ κατὰ συνθήκην, ὅτι φύσει τῶν ὀνομάτων οὐδέν ἐστιν, ἀλλ' ὅταν γένηται σύμβολον, ἐπεὶ δηλοῦσί γέ τι καὶ οἱ ἀγράμματοι ψόφοι, οἷον θηρίων, ὧν οὐδέν ἐστιν ὄνομα.

Τὸ δ' οὐκ ἄνθρωπος οὐκ ὄνομα. οὐ μὴν οὐδὲ κεῖται ὄνομα ὅ τι δεῖ καλεῖν αὐτό· οὔτε γὰρ λόγος οὔτε ἀπόφασίς ἐστιν. ἀλλ' ἔστω ὄνομα ἀόριστον, ὅτι ὁμοίως ἐφ' ὁτουοῦν ὑπάρχει καὶ ὄντος καὶ μὴ ὄντος.

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[a] *ἢ ἁπλῶς ἢ κατὰ χρόνον*; some would render these words 'in the present or some other tense.' I retain the Greek word rendered 'goat-stag,' which stands for a fabulous animal, half of it goat and half stag, since the word can nowadays be found in a number of good English dictionaries.

falsity. A noun or a verb by itself much resembles a concept or thought which is neither combined nor disjoined. Such is ‘ man,’ for example, or ‘ white,’ if pronounced without any addition. As yet it is not true nor false. And a proof of this lies in the fact that ‘ tragelaphos,’ while it means something, has no truth nor falsity in it, unless in addition you predicate being or not-being of it, whether generally (that is to say, without definite time-connotation) or in a particular tense.[a]

II. A noun is a sound having meaning established by convention alone but no reference whatever to time, while no part of it has any meaning, considered apart from the whole. Take the proper name ‘ Goodsteed,’ for instance. The ‘ steed ’ has no meaning apart, as it has in the phrase ‘ a good steed.’ It is necessary to notice, however, that simple nouns differ from composite. While in the case of the former the parts have no meaning at all, in the latter they have a certain meaning but not as apart from the whole. Let us take ‘ pirate-vessel,’ for instance. The ‘ vessel ’ has no sense whatever, except as a part of the whole.

We have already said that a noun signifies this or that *by convention.* No sound is by nature a noun: it becomes one, becoming a symbol. Inarticulate noises mean something—for instance, those made by brute beasts. But no noises of that kind are nouns.

‘ Not-man ’ and the like are not nouns, and I know of no recognized names we can give such expressions as these, which are neither denials nor sentences. Call them (for want of a better) by the name of indefinite nouns, since we use them of all kinds of things, non-existent as well as existing.

16b Τὸ δὲ Φίλωνος ἢ Φίλωνι καὶ ὅσα τοιαῦτα, οὐκ ὀνόματα ἀλλὰ πτώσεις ὀνόματος. λόγος δέ ἐστιν αὐτοῦ τὰ μὲν ἄλλα κατὰ τὰ αὐτά· ὅτι δὲ μετὰ τοῦ ἔστιν ἢ ἦν ἢ ἔσται οὐκ ἀληθεύει ἢ ψεύδεται, τὸ δὲ ὄνομα ἀεί· οἷον Φίλωνός ἐστιν ἢ οὐκ ἔστιν· οὐδὲν γάρ πω οὔτε ἀληθεύει οὔτε ψεύδεται.

III. Ῥῆμα δέ ἐστι τὸ προσσημαῖνον χρόνον, οὗ μέρος οὐδὲν σημαίνει χωρίς, καὶ ἔστιν ἀεὶ τῶν καθ' ἑτέρου λεγομένων σημεῖον. λέγω δ' ὅτι προσσημαίνει χρόνον, οἷον ὑγίεια μὲν ὄνομα, τὸ δὲ ὑγιαίνει ῥῆμα· προσσημαίνει γὰρ τὸ νῦν ὑπάρχειν. καὶ ἀεὶ τῶν καθ' ἑτέρου λεγομένων σημεῖόν ἐστιν, οἷον τῶν καθ' ὑποκειμένου ἢ ἐν ὑποκειμένῳ.

Τὸ δὲ οὐχ ὑγιαίνει καὶ τὸ οὐ κάμνει οὐ ῥῆμα λέγω· προσσημαίνει μὲν γὰρ χρόνον καὶ ἀεὶ κατά τινος ὑπάρχει, τῇ δὲ διαφορᾷ ὄνομα οὐ κεῖται· ἀλλ' ἔστω ἀόριστον ῥῆμα, ὅτι ὁμοίως ἐφ' ὁτουοῦν ὑπάρχει, καὶ ὄντος καὶ μὴ ὄντος.

Ὁμοίως δὲ καὶ τὸ ὑγίανεν ἢ τὸ ὑγιανεῖ οὐ ῥῆμα, ἀλλὰ πτῶσις ῥήματος· διαφέρει δὲ τοῦ ῥήματος, ὅτι τὸ μὲν τὸν παρόντα προσσημαίνει χρόνον, τὰ δὲ τὸ πέριξ.

Αὐτὰ μὲν οὖν καθ' ἑαυτὰ λεγόμενα τὰ ῥήματα ὀνόματά ἐστι καὶ σημαίνει τι (ἵστησι γὰρ ὁ λέγων

'Of Philo,' 'to Philo,' and so on are cases of nouns and not nouns. Otherwise we define all these cases as the noun in itself is defined; but when 'is,' 'was' or 'will be' is added, they do not then form propositions, which either are true or are false, as the noun itself always does then. For 'of Philo is' cannot by itself constitute a true or false proposition. Nor yet can 'of Philo is not.'

III. A verb is a sound which not only conveys a particular meaning but has a time-reference also. No part by itself has a meaning. It indicates always that something is said or asserted *of* something. Let me explain what I mean by 'it has a time-reference also.' Now, 'health' is a noun, for example, 'is healthy' is a verb, not a noun. For the latter conveys its own meaning but also conveys that the state signified (namely, health) now exists. Then, a verb was an indication of something asserted *of* something; I mean, of a something predicated of a subject or found present in it.

'Is not-ill,' 'is not-well' and so on I should not, for my own part, call verbs. Though they certainly have the time-reference and function at all times as predicates, I know of no recognized name. Let us call them (for want of a better) by the name of indefinite verbs, since we use them of all kinds of things, non-existent as well as existent.

'He was healthy' or 'he will be healthy' I likewise should not call a verb. I should call it the tense of a verb. Verb and tenses in this respect differ: the verb indicates present time but the tenses all times save the present.

Verbs by themselves, then, are nouns, and they stand for or signify something, for the speaker stops

16 b τὴν διάνοιαν, καὶ ὁ ἀκούσας ἠρέμησεν), ἀλλ' εἰ
ἔστιν ἢ μή, οὔπω σημαίνει· οὐδὲ γὰρ τὸ εἶναι ἢ
μὴ εἶναι σημεῖόν ἐστι τοῦ πράγματος, οὐδ' ἐὰν
τὸ ὂν εἴπῃς αὐτὸ καθ' ἑαυτὸ ψιλόν. αὐτὸ μὲν γὰρ
25 οὐδέν ἐστι, προσσημαίνει δὲ σύνθεσίν τινα, ἣν
ἄνευ τῶν συγκειμένων οὐκ ἔστι νοῆσαι.

IV. Λόγος δέ ἐστι φωνὴ σημαντική[1] ἧς τῶν
μερῶν τι σημαντικόν ἐστι κεχωρισμένον, ὡς φάσις,
ἀλλ' οὐχ ὡς κατάφασις ἢ ἀπόφασις. λέγω δέ,
οἷον ἄνθρωπος σημαίνει μέν τι, ἀλλ' οὐχ ὅτι
ἔστιν ἢ οὐκ ἔστιν· ἀλλ' ἔσται κατάφασις ἢ ἀπόφασις,
30 ἐάν τι προστεθῇ. ἀλλ' οὐχὶ τοῦ ἀνθρώπου
συλλαβὴ μία. οὐδὲ γὰρ ἐν τῷ μῦς τὸ ῦς σημαντικόν,
ἀλλὰ φωνή ἐστι νῦν μόνον. ἐν δὲ τοῖς
διπλοῖς σημαίνει μέν, ἀλλ' οὐ καθ' αὑτό, ὡς
προείρηται.

17 a Ἔστι δὲ λόγος ἅπας μὲν σημαντικός, οὐχ ὡς
ὄργανον δέ, ἀλλ' ὡς προείρηται, κατὰ συνθήκην.
ἀποφαντικὸς δὲ οὐ πᾶς, ἀλλ' ἐν ᾧ τὸ ἀληθεύειν ἢ
ψεύδεσθαι ὑπάρχει. οὐκ ἐν ἅπασι δὲ ὑπάρχει,
5 οἷον ἡ εὐχὴ λόγος μέν, ἀλλ' οὔτε ἀληθὴς οὔτε
ψευδής. οἱ μὲν οὖν ἄλλοι ἀφείσθωσαν· ῥητορικῆς
γὰρ ἢ ποιητικῆς οἰκειοτέρα ἡ σκέψις· ὁ δὲ ἀποφαντικὸς
τῆς νῦν θεωρίας.

V. Ἔστι δὲ εἷς πρῶτος λόγος ἀποφαντικὸς κατάφασις,
10 εἶτα ἀπόφασις· οἱ δ' ἄλλοι πάντες συνδέσμῳ
εἷς.

[1] B. adds κατὰ συνθήκην.

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[a] Here the existential sense of the verb 'to be' is ignored and the copulative only considered.

[b] Aristotle, of course, has in mind also questions, commands and the like.

his process of thinking and the mind of the hearer acquiesces. However, they do not as yet express positive or negative judgements. For even the infinitives 'to be,' 'not to be,' and the participle 'being' are indicative only of fact, if and when something further is added. They indicate nothing themselves but imply a copulation or synthesis, which we can hardly conceive of apart from the things thus combined.[a]

IV. A sentence is significant speech, of which this or that part may have meaning—as something, that is, that is uttered but not as expressing a judgement of a positive or negative character. Let me explain this more fully. Take 'mortal.' This, doubtless, has meaning but neither affirms nor denies; some addition or other is needed before it can affirm or deny. But the syllables of 'mortal' are meaningless. So it is also with 'mouse,' of which '-ouse' has no meaning whatever and is but a meaningless sound. But we saw that in composite nouns the particular parts have a meaning, although not apart from the whole.

But while every sentence has meaning, though not as an instrument of nature but, as we observed, by convention, not all can be called propositions. We call propositions those only that have truth or falsity in them. A prayer is, for instance, a sentence but neither has truth nor has falsity. Let us pass over all such, as their study more properly belongs to the province of rhetoric or poetry.[b] We have in our present inquiry propositions alone for our theme.

V. A simple affirmation is the first kind, a simple negation the second of those propositions called simple. The rest are but one by conjunction.

17 a 'Ανάγκη δὲ πάντα λόγον ἀποφαντικὸν ἐκ ῥήματος
εἶναι ἢ πτώσεως ῥήματος· καὶ γὰρ ὁ τοῦ ἀνθρώπου
λόγος, ἐὰν μὴ τὸ ἔστιν ἢ ἦν ἢ ἔσται ἤ τι τοιοῦτον
προστεθῇ, οὔπω λόγος ἀποφαντικός. διότι δὴ
ἕν τί ἐστιν ἀλλ' οὐ πολλὰ τὸ ζῷον πεζὸν δίπουν·
οὐ γὰρ δὴ τῷ σύνεγγυς εἰρῆσθαι εἷς ἔσται. ἔστι
15 δὲ ἄλλης πραγματείας τοῦτο εἰπεῖν.

"Εστι δὲ εἷς λόγος ἀποφαντικὸς ἢ ὁ ἓν δηλῶν ἢ
ὁ συνδέσμῳ εἷς, πολλοὶ δὲ οἱ πολλὰ καὶ μὴ ἓν ἢ
οἱ ἀσύνδετοι.

Τὸ μὲν οὖν ὄνομα ἢ ῥῆμα φάσις ἔστω μόνον,
ἐπειδὴ οὐκ ἔστιν εἰπεῖν οὕτω δηλοῦντά τι τῇ φωνῇ
ὥστε ἀποφαίνεσθαι, ἢ ἐρωτῶντός τινος, ἢ μή,
20 ἀλλ' αὐτὸν προαιρούμενον.

Τούτων δὲ ἡ μὲν ἁπλῆ ἐστιν ἀπόφανσις, οἷον τὶ
κατά τινος ἢ τὶ ἀπό τινος, ἡ δὲ ἐκ τούτων συγκειμένη
οἷον λόγος τις ἤδη σύνθετος. ἔστι δὲ
ἡ ἁπλῆ ἀπόφανσις φωνὴ σημαντικὴ περὶ τοῦ ὑπάρχειν
τι ἢ μὴ ὑπάρχειν, ὡς οἱ χρόνοι διῄρηνται.

25 VI. Κατάφασις δέ ἐστιν ἀπόφανσίς τινος κατά
τινος. ἀπόφασις δέ ἐστιν ἀπόφανσίς τινος ἀπό
τινος.

'Επεὶ δὲ ἔστι καὶ τὸ ὑπάρχον ἀποφαίνεσθαι ὡς
μὴ ὑπάρχον καὶ τὸ μὴ ὑπάρχον ὡς ὑπάρχον καὶ
τὸ ὑπάρχον ὡς ὑπάρχον καὶ τὸ μὴ ὑπάρχον ὡς

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[a] Complex or composite propositions are those that comprise more than one, as, for instance, 'A is B, C and D,' 'A is B, and C is D,' and so forth.

Of all propositions a verb or a tense of a verb must form part. The definition, for instance, of 'man,' unless 'is,' 'was' or 'will be' is added or something or other of that kind, does not constitute a proposition. But someone may ask how the phrase, 'footed animal, having two feet,' can be held to be one and not many. That the words are pronounced in succession does not constitute them a unity. However, that question belongs to a different inquiry from the present.

Now, those propositions are single which indicate one single fact or are one, as we said, by conjunction. And those propositions are many which indicate not one but many or else have their parts unconjoined.

Nouns and verbs let us call mere expressions. For we cannot use mere nouns or verbs, when expressing or enunciating something, for the purpose of making a statement, and that is so whether we happen to express a spontaneous opinion or someone propounded a question to which we are giving an answer.

And so, to return, we repeat that one kind of propositions is simple, comprising all those that affirm or deny some one thing of another, while the other is composite, that is, compounded of simple propositions.[a] And a simple proposition, more fully, is a statement possessing a meaning, affirming or denying the presence of some other thing in a subject in time past or present or future.

VI. We mean by affirmation a statement affirming one thing of another; we mean by negation a statement denying one thing of another.

As men can affirm and deny both the presence of that which is present and the presence of that which is absent and this they can do with a reference to

17 a 30 μὴ ὑπάρχον, καὶ περὶ τοὺς ἐκτὸς δὲ τοῦ νῦν
χρόνους ὡσαύτως, ἅπαν ἂν ἐνδέχοιτο καὶ ὃ κατ-
έφησέ τις ἀποφῆσαι καὶ ὃ ἀπέφησέ τις κατα-
φῆσαι. ὥστε δῆλον ὅτι πάσῃ καταφάσει ἐστὶν
ἀπόφασις ἀντικειμένη καὶ πάσῃ ἀποφάσει κατά-
φασις. καὶ ἔστω ἀντίφασις τοῦτο, κατάφασις
καὶ ἀπόφασις αἱ ἀντικείμεναι. λέγω δὲ ἀντι-
35 κεῖσθαι τὴν τοῦ αὐτοῦ κατὰ τοῦ αὐτοῦ, μὴ ὁμω-
νύμως δέ, καὶ ὅσα ἄλλα τῶν τοιούτων προσδι-
οριζόμεθα πρὸς τὰς σοφιστικὰς ἐνοχλήσεις.

VII. Ἐπεὶ δ' ἐστὶ τὰ μὲν καθόλου τῶν πραγ-
40 μάτων τὰ δὲ καθ' ἕκαστον (λέγω δὲ καθόλου μὲν
ὃ ἐπὶ πλειόνων πέφυκε κατηγορεῖσθαι, καθ'
17 b ἕκαστον δὲ ὃ μή, οἷον ἄνθρωπος μὲν τῶν καθόλου,
Καλλίας δὲ τῶν καθ' ἕκαστον)· ἀνάγκη δὲ ἀπο-
φαίνεσθαι ὡς ὑπάρχει τι ἢ μὴ ὁτὲ μὲν τῶν καθόλου
τινί, ὁτὲ δὲ τῶν καθ' ἕκαστον. ἐὰν μὲν οὖν
καθόλου ἀποφαίνηται ἐπὶ τοῦ καθόλου ὅτι ὑπάρχει
5 τι ἢ μή, ἔσονται ἐναντίαι αἱ ἀποφάνσεις. λέγω
δὲ ἐπὶ τοῦ καθόλου ἀποφαίνεσθαι καθόλου, οἷον
πᾶς ἄνθρωπος λευκός, οὐδεὶς ἄνθρωπος λευκός.
ὅταν δὲ ἐπὶ τῶν καθόλου μέν, μὴ καθόλου δέ,
αὗται μὲν οὐκ εἰσὶν ἐναντίαι, τὰ μέντοι δηλούμενα
ἔστιν εἶναι ἐναντία ποτέ. λέγω δὲ τὸ μὴ καθόλου
10 ἀποφαίνεσθαι ἐπὶ τῶν καθόλου, οἷον ἔστι λευκὸς
ἄνθρωπος, οὐκ ἔστι λευκὸς ἄνθρωπος· καθόλου
γὰρ ὄντος τοῦ ἄνθρωπος οὐχ ὡς καθόλου κέχρηται

times that lie outside the present, whatever a man may affirm, it is possible as well to deny, and whatever a man may deny, it is possible as well to affirm. Thus, it follows, each affirmative statement will have its own opposite negative, just as each negative statement will have its affirmative opposite. Every such pair of propositions we, therefore, shall call contradictories, always assuming the predicates and subjects are really the same and the terms used without ambiguity. These and some other provisos are needed in view of the puzzles propounded by importunate sophists.

VII. Of things there are some universal and some individual or singular, according, I mean, as their nature is such that they can or they cannot be predicates of numerous subjects, as ' man,' for example, and ' Callias.'

Propositions, affirmative and negative, must sometimes have universal subjects, at others individual or singular. Suppose we state two propositions, one affirmative, one of them negative, both universal in form, having one universal for subject ; then these propositions are contrary. By ' both universal in form, having one universal for subject,' I mean to say such propositions as ' every man is white,' on the one hand, and ' no man is white,' on the other. When, however, the two propositions, while having a universal subject, are not universal in character, we cannot describe them as contraries, though on occasions, it may be, the meaning intended is contrary. Take as examples of these ' man is white,' ' man is not white ' and so on. The subject or ' man ' is universal, and yet the propositions themselves are not stated as though universal. For neither contains the word

17 b τῇ ἀποφάνσει· τὸ γὰρ πᾶς οὐ τὸ καθόλου σημαίνει
ἀλλ᾿ ὅτι καθόλου. ἐπὶ δὲ τοῦ κατηγορουμένου
καθόλου κατηγορεῖν τὸ καθόλου οὐκ ἔστιν ἀληθές·
οὐδεμία γὰρ κατάφασις ἀληθὴς ἔσται, ἐν ᾗ τοῦ
15 κατηγορουμένου καθόλου τὸ καθόλου κατηγορεῖται,
οἷον ἔστι πᾶς ἄνθρωπος πᾶν ζῷον.

Ἀντικεῖσθαι μὲν οὖν κατάφασιν ἀποφάσει λέγω
ἀντιφατικῶς τὴν τὸ καθόλου σημαίνουσαν τῷ
αὐτῷ ὅτι οὐ καθόλου, οἷον πᾶς ἄνθρωπος λευκὸς
—οὐ πᾶς ἄνθρωπος λευκός, οὐδεὶς ἄνθρωπος λευκός
20 —ἔστι τις ἄνθρωπος λευκός· ἐναντίως δὲ τὴν τοῦ
καθόλου κατάφασιν καὶ τὴν τοῦ καθόλου ἀπόφασιν,
οἷον πᾶς ἄνθρωπος λευκός—οὐδεὶς ἄνθρωπος λευκός,
πᾶς ἄνθρωπος δίκαιος—οὐδεὶς ἄνθρωπος
δίκαιος.

Διὸ ταύτας μὲν οὐχ οἷόν τε ἅμα ἀληθεῖς εἶναι,
τὰς δὲ ἀντικειμένας αὐταῖς ἐνδέχεταί ποτε ἐπὶ
25 τοῦ αὐτοῦ ἅμα ἀληθεῖς εἶναι, οἷον οὐ πᾶς ἄνθρωπος
λευκὸς καὶ ἔστι τις ἄνθρωπος λευκός. ὅσαι μὲν
οὖν ἀντιφάσεις τῶν καθόλου εἰσὶ καθόλου, ἀνάγκη
τὴν ἑτέραν ἀληθῆ εἶναι ἢ ψευδῆ, καὶ ὅσαι ἐπὶ τῶν

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[a] 'Distributed,' in the language of the text-books.

'every.' The subject is not a universal in virtue of having an 'every'; but 'every,' applied to the subject, confers on the whole proposition its absolute universality. And yet, if *both* subject and predicate are used in their fullest extension,[a] the resulting proposition will be false. For, indeed, no affirmation at all could, in those circumstances, be true. 'Every man is every animal' will serve as a good illustration of this.

When their subject is one and the same but of two propositions the affirmative clearly indicates in its terms that the subject is taken universally, the negative, however, that the subject is not universally taken, I call them contradictorily opposed. Examples are 'every man is white,' 'not every man is white' and the like, or, again, we have 'some men are white,' to which 'no man is white' is opposed in the manner of which I am speaking. Propositions are contrarily opposed when affirmative and negative alike are possessed of a universal character—the subject, that is, in both cases being marked as universally taken. Thus 'every man is white' or 'is just' is the contrary, not the contradictory, of 'no man is white' or 'is just.'

In the case of such contraries we see that not both can be true at one time. Notwithstanding, their contradictories sometimes are both of them true, though their subject be one and the same. On the one hand, 'not every man is white,' on the other hand, 'some men are white' will be both of them true propositions. But of those contradictory opposites having universals for subjects and being universal in character, one must be true, the other false. This also holds good of propositions with singular terms

καθ' ἕκαστα, οἷον ἔστι Σωκράτης λευκός—οὐκ ἔστι Σωκράτης λευκός· ὅσαι δὲ ἐπὶ τῶν καθόλου μέν, μὴ καθόλου δέ, οὐκ ἀεὶ ἡ μὲν ἀληθὴς ἡ δὲ ψευδής. ἅμα γὰρ ἀληθές ἐστιν εἰπεῖν ὅτι ἔστιν ἄνθρωπος λευκὸς καὶ ὅτι οὐκ ἔστιν ἄνθρωπος λευκός, καὶ ἔστιν ἄνθρωπος καλὸς καὶ οὐκ ἔστιν ἄνθρωπος καλός. εἰ γὰρ αἰσχρός, καὶ οὐ καλός· καὶ εἰ γίνεταί τι, καὶ οὐκ ἔστιν. δόξειε δ' ἂν ἐξαίφνης ἄτοπον εἶναι διὰ τὸ φαίνεσθαι σημαίνειν τὸ οὐκ ἔστιν ἄνθρωπος λευκός ἅμα καὶ ὅτι οὐδεὶς ἄνθρωπος λευκός· τὸ δὲ οὔτε ταὐτὸν σημαίνει οὔθ' ἅμα ἐξ ἀνάγκης.

Φανερὸν δὲ ὅτι καὶ μία ἀπόφασις μιᾶς καταφάσεώς ἐστι· τὸ γὰρ αὐτὸ δεῖ ἀποφῆσαι τὴν ἀπόφασιν ὅπερ κατέφησεν ἡ κατάφασις, καὶ ἀπὸ τοῦ αὐτοῦ, ἢ τῶν καθ' ἕκαστά τινος ἢ ἀπὸ τῶν καθόλου τινός, ἢ ὡς καθόλου ἢ ὡς μὴ καθόλου. λέγω δὲ οἷον ἔστι Σωκράτης λευκός—οὐκ ἔστι Σωκράτης λευκός. ἐὰν δὲ ἄλλο τι ἢ ἀπ' ἄλλου τὸ αὐτό, οὐχ ἡ ἀντικειμένη ἀλλ' ἔσται ἐκείνης ἑτέρα. τῇ δὲ πᾶς ἄνθρωπος λευκός ἡ οὐ πᾶς ἄνθρωπος λευκός, τῇ δὲ τὶς ἄνθρωπος λευκός ἡ οὐδεὶς ἄνθρωπος λευκός· τῇ δὲ ἔστιν ἄνθρωπος λευκός ἡ οὐκ ἔστιν ἄνθρωπος λευκός.

Ὅτι μὲν οὖν μιᾷ καταφάσει μία ἀπόφασις ἀντίκειται ἀντιφατικῶς, καὶ τίνες εἰσὶν αὗται, εἴρηται· καὶ ὅτι αἱ ἐναντίαι ἄλλαι, καὶ τίνες εἰσὶν αὗται,

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[a] *i.e.* either distributed or undistributed.

for their subjects, as 'Socrates is white' and 'not white.' When, however, the two propositions are not universal in character, albeit about universals, not always do we find it the case that of these one is true, the other false. For, indeed, we can state very truly that man is and man is not white, and that man is and man is not beautiful. If ugly, a man is not beautiful; neither as yet is he beautiful, if he but tends to become so. This view on a summary notice may well seem repugnant to reason, since 'man is not white' would appear the equivalent of 'no man is white.' But they do not, in fact, mean the same, nor, again, are they both of necessity true at the same time or false. It is evident that the denial corresponding to a single affirmation itself must be single as well. The denial, that is, must deny just the thing the affirmation affirms of the selfsame, identical subject. We further require that the subjects be both universal or singular and also that both should be used or not used in their fullest extension.[a] 'Socrates is white' and 'not white' constitute in this manner a pair. But if anything else is denied or the subject itself should be changed, though the predicate yet may remain, the denial will not correspond but be one that is simply distinct. To 'every man is white,' for example, 'not every man is white' corresponds, as 'no man is white,' 'man is not white' to 'some men are white,' 'man is white.'

Now to sum up the foregoing statements, we showed that a single negation is opposed to a single affirmation in the manner we called contradictory and also explained which these were. From the class of contradictory propositions we further distinguished the contrary, explaining which these also were. We,

εἴρηται· καὶ ὅτι οὐ πᾶσα ἀληθὴς ἢ ψευδὴς ἀντίφασις, καὶ διὰ τί, καὶ πότε ἀληθὴς ἢ ψευδής.

VIII. Μία δέ ἐστι κατάφασις καὶ ἀπόφασις ἡ ἓν καθ' ἑνὸς σημαίνουσα, ἢ καθόλου ὄντος καθόλου ἢ μὴ ὁμοίως, οἷον πᾶς ἄνθρωπος λευκός ἐστιν—οὐκ ἔστι πᾶς ἄνθρωπος λευκός, ἔστιν ἄνθρωπος λευκός—οὐκ ἔστιν ἄνθρωπος λευκός, οὐδεὶς ἄνθρωπος λευκός—ἔστι τις ἄνθρωπος λευκός, εἰ τὸ λευκὸν ἓν σημαίνει. εἰ δὲ δυοῖν ἓν ὄνομα κεῖται, ἐξ ὧν μή ἐστιν ἕν, οὐ μία κατάφασις,[1] οἷον εἴ τις θεῖτο ὄνομα ἱμάτιον ἵππῳ καὶ ἀνθρώπῳ, τὸ ἔστιν ἱμάτιον λευκόν, αὕτη οὐ μία κατάφασις οὐδὲ ἀπόφασις μία. οὐδὲν γὰρ διαφέρει τοῦτο εἰπεῖν ἢ ἔστιν ἵππος καὶ ἄνθρωπος λευκός. τοῦτο δὲ οὐδὲν διαφέρει τοῦ εἰπεῖν ἔστιν ἵππος λευκὸς καὶ ἔστιν ἄνθρωπος λευκός. εἰ οὖν αὗται πολλὰ σημαίνουσι καὶ εἰσὶ πολλαί, δῆλον ὅτι καὶ ἡ πρώτη ἤτοι πολλὰ ἢ οὐδὲν σημαίνει· οὐ γάρ ἐστιν ὁ τὶς ἄνθρωπος ἵππος. ὥστε οὐδ' ἐν ταύταις ἀνάγκη τὴν μὲν ἀληθῆ τὴν δὲ ψευδῆ εἶναι ἀντίφασιν.

IX. Ἐπὶ μὲν οὖν τῶν ὄντων καὶ γενομένων ἀνάγκη τὴν κατάφασιν ἢ τὴν ἀπόφασιν ἀληθῆ ἢ ψευδῆ εἶναι, καὶ ἐπὶ μὲν τῶν καθόλου ὡς καθόλου

[1] B. adds οὐδὲ ἀπόφασις μία.

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[a] Both may be true or both false.

moreover, have proved of two opposites that it is not the case always that one must be true and one false, and we set forth the reasons for this and explained the conditions in which one is false, if the other is true.

VIII. A statement is single or one, when it either affirms or denies some one thing and no more of another, be the subject universal or not and the statement universal or not. We may take for examples the following, provided that 'white' has one meaning:

Every man is white.	Not every man is white.
Man is white.	Man is not white.
No man is white.	Some men are white.

If, however, one word has two meanings, which do not combine to make one, the affirmation itself is not one. If, for instance, you gave the name 'garment' alike to a horse and a man, then it follows that 'garment is white' would be not one but two affirmations, as also would 'garment is not white' be not one denial but two. For the statement that 'garment is white' really means 'horse and man both are white.' And this statement, in turn, is the same as to say 'horse is white,' 'man is white.' And if these have more meanings than one and do not, in effect, make one statement, it follows that 'garment is white' must itself have more meanings than one or, if not, it means nothing at all. For no particular man is a horse. And accordingly not even here is one necessarily true and one false of two statements opposed contradictorily.[a]

IX. In regard to things present or past, propositions, whether positive or negative, are true of necessity or false. And of those contradictorily

18 a ἀεὶ τὴν μὲν ἀληθῆ τὴν δὲ ψευδῆ εἶναι, καὶ ἐπὶ τῶν καθ' ἕκαστα, ὥσπερ εἴρηται, ἐπὶ δὲ τῶν καθόλου μὴ καθόλου λεχθέντων οὐκ ἀνάγκη· εἴρηται δὲ καὶ περὶ τούτων.

Ἐπὶ δὲ τῶν καθ' ἕκαστα καὶ μελλόντων οὐχ ὁμοίως. εἰ γὰρ πᾶσα κατάφασις καὶ ἀπόφασις 35 ἀληθὴς ἢ ψευδής, καὶ ἅπαν ἀνάγκη ὑπάρχειν ἢ μὴ ὑπάρχειν, ὥστε εἰ ὁ μὲν φήσει ἔσεσθαί τι ὁ δὲ μὴ φήσει τὸ αὐτὸ τοῦτο, δῆλον ὅτι ἀνάγκη ἀληθεύειν τὸν ἕτερον αὐτῶν, εἰ πᾶσα κατάφασις καὶ ἀπόφασις ἀληθὴς ἢ ψευδής. ἄμφω γὰρ οὐχ ὑπάρξει ἅμα ἐπὶ τοῖς τοιούτοις. εἰ γὰρ ἀληθὲς 18 b εἰπεῖν ὅτι λευκὸν ἢ ὅτι οὐ λευκόν ἐστιν, ἀνάγκη εἶναι λευκὸν ἢ οὐ λευκόν, καὶ εἰ ἔστι λευκὸν ἢ οὐ λευκόν, ἀληθὲς ἦν φάναι ἢ ἀποφάναι· καὶ εἰ μὴ ὑπάρχει, ψεύδεται, καὶ εἰ ψεύδεται, οὐχ ὑπάρχει, 5 ὥστε ἀνάγκη ἢ τὴν κατάφασιν ἢ τὴν ἀπόφασιν ἀληθῆ εἶναι ἢ ψευδῆ.

Οὐδὲν ἄρα οὔτε ἔστιν οὔτε γίνεται οὔτε ἀπὸ τύχης οὔθ' ὁπότερ' ἔτυχεν, οὐδὲ ἔσται ἢ οὐκ ἔσται, ἀλλ' ἐξ ἀνάγκης ἅπαντα καὶ οὐχ ὁπότερ' ἔτυχεν. ἢ γὰρ ὁ φὰς ἀληθεύσει ἢ ὁ ἀποφάς.

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[a] This chapter deals largely with contingency. However, it is hard to determine whether Aristotle held that contingency could anywhere be found in the universe. See W. D. Ross, *Aristotle*, pp. 31, 75-78 and elsewhere.

opposed one, again, must be true and one false, when they have a universal for subject and are in themselves universal or else, as we noticed above, have a singular term for their subject. This need not, however, be so in the case of two such propositions as have universals for subjects but are not themselves universal. That question also we discussed.

When, however, we come to propositions whose subjects are singular terms, while their predicates refer to the future and not to the present or past, then we find that the case is quite changed.[a] Propositions, whether positive or negative, being themselves true or false, every predicate that we affirm must belong to its subject or not. Hence it is that, if someone declares that a certain event will take place, while another declares it will not, one will clearly be speaking the truth, while the other as clearly will not. Both predicates cannot belong to one subject with regard to the future. For, if it is true to pronounce some particular thing to be white, it must be of necessity white. The reverse of this also holds good. As, again, it is white or not white, it was true to affirm or deny it. And, if it is not, in fact, white, then to say that it is will be false ; if to say that it is will be false, then it follows the thing is not white. We are driven, therefore, to concluding that all affirmations and denials must either be true or be false.

Now, if all this is so, there is nothing that happens by chance or fortuitously ; nothing will ever so happen. Contingency there can be none ; all events come about of necessity. Either the man who maintains that a certain event will take place or the man who maintains the reverse will be speaking the

ὁμοίως γὰρ ἂν ἐγίνετο ἢ οὐκ ἐγίνετο· τὸ γὰρ ὁπότερ' ἔτυχεν οὐδὲν μᾶλλον οὕτως ἢ μὴ οὕτως ἔχει ἢ ἕξει.

Ἔτι εἰ ἔστι λευκὸν νῦν, ἀληθὲς ἦν εἰπεῖν πρότερον ὅτι ἔσται λευκόν, ὥστε ἀεὶ ἀληθὲς ἦν εἰπεῖν ὁτιοῦν τῶν γενομένων ὅτι ἔστιν ἢ ἔσται. εἰ δὲ ἀεὶ ἀληθὲς ἦν εἰπεῖν ὅτι ἔστιν ἢ ἔσται, οὐχ οἷόν τε τοῦτο μὴ εἶναι οὐδὲ μὴ ἔσεσθαι. ὃ δὲ μὴ οἷόν τε μὴ γενέσθαι, ἀδύνατον μὴ γενέσθαι· ὃ δὲ ἀδύνατον μὴ γενέσθαι, ἀνάγκη γενέσθαι. ἅπαντα οὖν τὰ ἐσόμενα ἀναγκαῖον γενέσθαι. οὐδὲν ἄρα ὁπότερ' ἔτυχεν οὐδὲ ἀπὸ τύχης ἔσται· εἰ γὰρ ἀπὸ τύχης, οὐκ ἐξ ἀνάγκης.

Ἀλλὰ μὴν οὐδ' ὡς οὐδέτερόν γε ἀληθὲς ἐνδέχεται λέγειν, οἷον ὅτι οὔτε ἔσται οὔτε οὐκ ἔσται. πρῶτον μὲν γὰρ οὔσης τῆς καταφάσεως ψευδοῦς ἡ ἀπόφασις οὐκ ἀληθής, καὶ ταύτης ψευδοῦς οὔσης τὴν κατάφασιν συμβαίνει μὴ ἀληθῆ εἶναι. καὶ πρὸς τούτοις, εἰ ἀληθὲς εἰπεῖν ὅτι λευκὸν καὶ μέγα, δεῖ ἄμφω ὑπάρχειν. εἰ δὲ ὑπάρξει εἰς αὔριον, ὑπάρξειν[1] εἰς αὔριον. εἰ δὲ μήτε ἔσται μήτε μὴ ἔσται αὔριον, οὐκ ἂν εἴη τὸ ὁπότερ' ἔτυχεν, οἷον ναυμαχία· δέοι γὰρ ἂν μήτε γενέσθαι ναυμαχίαν αὔριον μήτε μὴ γενέσθαι.

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[1] ὑπάρξει B.

truth on that point. Things could just as well happen as not, if the one or the other assertion is not of necessity true. For as that term is used in regard to both present and future events, the contingent is that which could just as well happen in this way as that.

If, moreover, a thing is now white, then it would have been true in past time to affirm that that thing *would* be white, and thus at all times was it true of whatever has now taken place to affirm that ' it is ' or ' will be.' But if it at all times was true to affirm that ' it is ' or ' will be,' how impossible that it should not be or not be about to be so ! When a thing cannot not come to be, how impossible that it should not ! If, again, its not coming to be is impossible, as we assume, come to be then it certainly must. And in consequence future events, as we said, come about of necessity. Nothing is casual, contingent. For if a thing happened by chance, it would not come about of necessity.

We cannot contend, notwithstanding, that neither proposition is true. For example, we cannot contend that a certain event neither will nor will not come to pass in the future. For, first, although one affirmation or denial should prove to be false, yet the other would still not be true. Were it, secondly, true to affirm that the same thing is both white and large, it would have both these marks of necessity. If it will have them to-morrow, it will of necessity have them. But if some event neither will nor will not come to pass on the morrow, contingency there will be none. Let us take, for example, a sea-fight. It is requisite on our hypothesis that it should neither take place nor yet fail to take place on the morrow.

Τὰ μὲν δὴ συμβαίνοντα ἄτοπα ταῦτα καὶ τοιαῦτα ἕτερα, εἴπερ πάσης καταφάσεως καὶ ἀποφάσεως ἢ ἐπὶ τῶν καθόλου λεγομένων ὡς καθόλου ἢ ἐπὶ τῶν καθ' ἕκαστον ἀνάγκη τῶν ἀντικειμένων εἶναι τὴν μὲν ἀληθῆ τὴν δὲ ψευδῆ, μηδὲν δὲ ὁπότερ' ἔτυχεν εἶναι ἐν τοῖς γιγνομένοις, ἀλλὰ πάντα εἶναι καὶ γίγνεσθαι ἐξ ἀνάγκης. ὥστε οὔτε βουλεύεσθαι δέοι ἂν οὔτε πραγματεύεσθαι, ὡς ἐὰν μὲν τοδὶ ποιήσωμεν, ἔσται τοδί, ἐὰν δὲ μὴ τοδί, οὐκ ἔσται τοδί. οὐδὲν γὰρ κωλύει καὶ εἰς μυριοστὸν ἔτος τὸν μὲν φάναι τοῦτο ἔσεσθαι τὸν δὲ μὴ φάναι, ὥστε ἐξ ἀνάγκης ἔσεσθαι ὁποτερονοῦν αὐτῶν ἀληθὲς ἦν εἰπεῖν τότε. ἀλλὰ μὴν οὐδὲ τοῦτο διαφέρει, εἴ τινες εἶπον τὴν ἀντίφασιν ἢ μὴ εἶπον· δῆλον γὰρ ὅτι οὕτως ἔχει τὰ πράγματα, κἂν μὴ ὁ μὲν καταφήσῃ τι ὁ δὲ ἀποφήσῃ· οὐδὲ γὰρ διὰ τὸ καταφαθῆναι ἢ ἀποφαθῆναι ἔσται ἢ οὐκ ἔσται, οὐδ' εἰς μυριοστὸν ἔτος μᾶλλον ἢ ἐν ὁποσῳοῦν χρόνῳ. ὥστε εἰ ἐν ἅπαντι τῷ χρόνῳ οὕτως εἶχεν ὥστε τὸ ἕτερον ἀληθεύεσθαι, ἀναγκαῖον ἦν τοῦτο γενέσθαι, καὶ ἕκαστον τῶν γενομένων ἀεὶ οὕτως εἶχεν ὥστε ἐξ ἀνάγκης γενέσθαι. ὅ τε γὰρ ἀληθῶς εἶπέ τις ὅτι ἔσται, οὐχ οἷόν τε μὴ γενέσθαι· καὶ τὸ γινόμενον ἀληθὲς ἦν εἰπεῖν ἀεὶ ὅτι ἔσται.

Εἰ δὴ ταῦτα ἀδύνατα—ὁρῶμεν γὰρ ὅτι ἔστιν ἀρχὴ τῶν ἐσομένων καὶ ἀπὸ τοῦ βουλεύεσθαι καὶ

These and other strange consequences follow, provided we assume in the case of a pair of contradictory opposites having universals for subjects and being themselves universal or having an individual subject, that one must be true, the other false, that contingency there can be none and that all things that are or take place come about in the world by necessity. No need would there be for mankind to deliberate or to take pains, could we make the assumption that if we adopt a particular line, then a certain result will ensue and that, if we do not, it will not. There is nothing to prevent any man from predicting some future event (say) some ten thousand years beforehand, while another predicts the reverse : the event that was truly predicted must needs come to pass at long last. And, indeed, it is quite immaterial whether contradictory predictions were actually made beforehand. For that someone affirmed or denied does not alter the course of events. And events are not caused or prevented by someone's affirming or denying that at some future time they would happen. Nor yet, let us add, does it matter how old the predictions may be. And, in consequence, if through the ages the nature of things has been such that a certain prediction was true, that prediction must needs be fulfilled ; and the nature of all things was such that events came about of necessity. For any event anyone in the past has once truly predicted must needs in due course come about, and of that which has once come about it was true at all times to affirm that it would in due time come about.

All this is, however, impossible. We know from our personal experience that future events may depend on the counsels and actions of men, and that,

ἀπὸ τοῦ πρᾶξαί τι, καὶ ὅτι ὅλως ἔστιν ἐν τοῖς μὴ ἀεὶ ἐνεργοῦσι τὸ δυνατὸν εἶναι καὶ μή, ὁμοίως· ἐν οἷς ἄμφω ἐνδέχεται, καὶ τὸ εἶναι καὶ τὸ μὴ εἶναι, ὥστε καὶ τὸ γενέσθαι καὶ τὸ μὴ γενέσθαι. καὶ πολλὰ ἡμῖν δῆλά ἐστιν οὕτως ἔχοντα, οἷον ὅτι τουτὶ τὸ ἱμάτιον δυνατόν ἐστι διατμηθῆναι καὶ οὐ διατμηθήσεται, ἀλλ' ἔμπροσθεν κατατριβήσεται. ὁμοίως δὲ καὶ τὸ μὴ διατμηθῆναι δυνατόν· οὐ γὰρ ἂν ὑπῆρχε τὸ ἔμπροσθεν αὐτὸ κατατριβῆναι, εἴγε μὴ δυνατὸν ἦν τὸ μὴ διατμηθῆναι. ὥστε καὶ ἐπὶ τῶν ἄλλων γενέσεων, ὅσαι κατὰ δύναμιν λέγονται τὴν τοιαύτην. φανερὸν ἄρα ὅτι οὐχ ἅπαντα ἐξ ἀνάγκης οὔτ' ἔστιν οὔτε γίνεται, ἀλλὰ τὰ μὲν ὁπότερ' ἔτυχε, καὶ οὐδὲν μᾶλλον ἡ κατάφασις ἢ ἡ ἀπόφασις ἀληθής, τὰ δὲ μᾶλλον μὲν καὶ ὡς ἐπὶ τὸ πολὺ θάτερον, οὐ μὴν ἀλλ' ἐνδέχεται γενέσθαι καὶ θάτερον, θάτερον δὲ μή.

Τὸ μὲν οὖν εἶναι τὸ ὂν ὅταν ᾖ, καὶ τὸ μὴ ὂν μὴ εἶναι ὅταν μὴ ᾖ, ἀνάγκη· οὐ μὴν οὔτε τὸ ὂν ἅπαν ἀνάγκη εἶναι οὔτε τὸ μὴ ὂν μὴ εἶναι. οὐ γὰρ ταὐτόν ἐστι τὸ ὂν ἅπαν εἶναι ἐξ ἀνάγκης ὅτε ἔστι, καὶ τὸ ἁπλῶς εἶναι ἐξ ἀνάγκης. ὁμοίως δὲ καὶ ἐπὶ τοῦ μὴ ὄντος. καὶ ἐπὶ τῆς ἀντιφάσεως ὁ αὐτὸς λόγος. εἶναι μὲν ἢ μὴ εἶναι ἅπαν ἀνάγκη, καὶ ἔσεσθαί γε ἢ μή· οὐ μέντοι διελόντα γε εἰπεῖν θάτερον ἀναγκαῖον. λέγω δὲ οἷον ἀνάγκη μὲν ἔσεσθαι ναυμαχίαν αὔριον ἢ μὴ ἔσεσθαι, οὐ μέντοι ἔσεσθαί γε αὔριον ναυμαχίαν ἀναγκαῖον οὐδὲ μὴ γενέσθαι· γενέσθαι μέντοι ἢ μὴ γενέσθαι ἀναγκαῖον.

speaking more broadly, those things that are not uninterruptedly actual exhibit a potentiality, that is, a 'may or may not be.' If such things may be or may not be, events may take place or may not. There are many plain cases of this. Thus this coat may be cut in two halves; yet it may not be cut in two halves. It may wear out before that can happen: then it may not be cut into two. For, unless that were really the case, then its wearing out first were not possible. The same with all other events which in any such sense are potential. Thus it is clear that not everything is or takes place of necessity. Cases there are of contingency; no truer is then the affirmative, no falser, than the negative statement. Some cases, moreover, we find that, at least, for the most part and commonly, tend in a certain direction, and yet they may issue at times in the other or rarer direction.

What is must needs be when it is; what is not cannot be when it is not. However, not all that exists any more than all that which does not comes about or exists by necessity. That what is must be when 'it is' does not mean the same thing as to say that all things come about by necessity. And so, too, with that which is not. And with two contradictory statements the same thing is found to hold good. That is, all things must be or not be, or must come or not come into being, at this or that time in the future. But we cannot determinately say *which* alternative *must* come to pass. For example, a sea-fight must either take place on the morrow or not. No necessity is there, however, that it should come to pass or should not. What is necessary is that it either should happen to-morrow or not. And so, as the

ὥστ᾽ ἐπεὶ ὁμοίως οἱ λόγοι ἀληθεῖς ὥσπερ τὰ πράγματα, δῆλον ὅτι ὅσα οὕτως ἔχει ὥστε ὁπότερ᾽ ἔτυχε καὶ τἀναντία ἐνδέχεσθαι, ἀνάγκη ὁμοίως ἔχειν καὶ τὴν ἀντίφασιν.

Ὅπερ συμβαίνει ἐπὶ τοῖς μὴ ἀεὶ οὖσιν ἢ μὴ ἀεὶ μὴ οὖσιν. τούτων γὰρ ἀνάγκη μὲν θάτερον μόριον τῆς ἀντιφάσεως ἀληθὲς εἶναι ἢ ψεῦδος, οὐ μέντοι τόδε ἢ τόδε ἀλλ᾽ ὁπότερ᾽ ἔτυχε, καὶ μᾶλλον μὲν ἀληθῆ τὴν ἑτέραν, οὐ μέντοι ἤδη ἀληθῆ ἢ ψευδῆ. ὥστε δῆλον ὅτι οὐκ ἀνάγκη πάσης καταφάσεως καὶ ἀποφάσεως τῶν ἀντικειμένων τὴν μὲν ἀληθῆ τὴν δὲ ψευδῆ εἶναι· οὐ γὰρ ὥσπερ ἐπὶ τῶν ὄντων, οὕτως ἔχει καὶ ἐπὶ τῶν μὴ ὄντων μὲν δυνατῶν δὲ εἶναι ἢ μὴ εἶναι, ἀλλ᾽ ὥσπερ εἴρηται.

X. Ἐπεὶ δέ ἐστί τι κατά τινος ἡ κατάφασις σημαίνουσα, τοῦτο δέ ἐστιν ἢ ὄνομα ἢ τὸ ἀνώνυμον, ἓν δὲ δεῖ εἶναι καὶ καθ᾽ ἑνὸς τὸ ἐν τῇ καταφάσει (τὸ δὲ ὄνομα εἴρηται καὶ τὸ ἀνώνυμον πρότερον· τὸ γὰρ οὐκ ἄνθρωπος ὄνομα μὲν οὐ λέγω ἀλλ᾽ ἀόριστον ὄνομα· ἓν γάρ πως σημαίνει καὶ τὸ ἀόριστον· ὥσπερ καὶ τὸ οὐχ ὑγιαίνει οὐ ῥῆμα ἀλλ᾽ ἀόριστον ῥῆμα), ἔσται πᾶσα κατάφασις καὶ ἀπόφασις ἢ ἐξ ὀνόματος καὶ ῥήματος ἢ ἐξ ἀορίστου ὀνόματος καὶ ῥήματος. ἄνευ δὲ ῥήματος οὐδεμία κατάφασις οὐδὲ ἀπόφασις· τὸ γὰρ ἔστιν ἢ ἔσται ἢ ἦν ἢ γίνεται, ἢ ὅσα ἄλλα τοιαῦτα, ῥήματα ἐκ τῶν κειμένων ἐστί· προσσημαίνει γὰρ χρόνον.

truth of propositions consists in corresponding with facts, it is clear in the case of events where contingency or potentiality in opposite directions is found that the two contradictory statements about them will have the same character.

With what is not always existent or not at all times non-existent we find this exactly the case. For one half of the said contradiction must be true and the other half false. But we cannot say which half is which. Though it may be that one is more probable, it cannot be true yet or false. There is evidently, then, no necessity that one should be true, the other false, in the case of affirmations and denials. For the case of those things which as yet are potential, not actually existent, is different from that of things actual. It is as we stated above.

X. An affirmative proposition is one that states something of something. The subject is either a noun or a something not possessed of a name, and of subject and predicate either must signify only one thing. We explained what we meant by a noun and by what has no name of its own. For we said that 'not-man,' for example, was not, strictly speaking, a noun, and we called such 'indefinite nouns,' since they do in a manner at least signify or denote single things. In like manner, the phrase 'is not healthy' is not, strictly speaking, a verb, and we called such 'indefinite verbs.' Thus affirmative and negative judgements consist of a noun and a verb, whether strictly so called or indefinite. Unless there is also a verb, there is no affirmation nor denial. For expressions like 'is,' 'will be,' 'was,' 'comes to be' and so forth are all verbs upon our definition of the word, for beside their particular meaning they have

19 b ὥστε πρώτη ἔσται κατάφασις καὶ ἀπόφασις τὸ
ἔστιν ἄνθρωπος—οὐκ ἔστιν ἄνθρωπος, εἶτα ἔστιν
οὐκ ἄνθρωπος—οὐκ ἔστιν οὐκ ἄνθρωπος, πάλιν
ἔστι πᾶς ἄνθρωπος—οὐκ ἔστι πᾶς ἄνθρωπος, ἔστι
πᾶς οὐκ ἄνθρωπος—οὐκ ἔστι πᾶς οὐκ ἄνθρωπος.
καὶ ἐπὶ τῶν ἐκτὸς δὲ χρόνων ὁ αὐτὸς λόγος.

20 Ὅταν δὲ τὸ ἔστι τρίτον προσκατηγορῆται, ἤδη
διχῶς λέγονται αἱ ἀντιθέσεις. λέγω δὲ οἷον ἔστι
δίκαιος ἄνθρωπος· τὸ ἔστι τρίτον φημὶ συγκεῖσθαι
ὄνομα ἢ ῥῆμα ἐν τῇ καταφάσει. ὥστε διὰ τοῦτο
τέτταρα ἔσται ταῦτα, ὧν τὰ μὲν δύο πρὸς τὴν
κατάφασιν καὶ ἀπόφασιν ἕξει κατὰ τὸ στοιχοῦν
ὡς αἱ στερήσεις, τὰ δὲ δύο οὔ. λέγω δ' ὅτι τὸ
25 ἔστιν ἢ τῷ δικαίῳ προσκείσεται ἢ τῷ οὐ δικαίῳ,
ὥστε καὶ ἡ ἀπόφασις. τέτταρα οὖν ἔσται. νοοῦμεν
δὲ τὸ λεγόμενον ἐκ τῶν ὑπογεγραμμένων. ἔστι
δίκαιος ἄνθρωπος· ἀπόφασις τούτου, οὐκ ἔστι
δίκαιος ἄνθρωπος. ἔστιν οὐ-δίκαιος ἄνθρωπος·
τούτου ἀπόφασις, οὐκ ἔστιν οὐ-δίκαιος ἄνθρωπος.
τὸ γὰρ ἔστιν ἐνταῦθα καὶ τὸ οὐκ ἔστι τῷ δικαίῳ
30 προσκείσεται καὶ τῷ οὐ δικαίῳ. ταῦτα μὲν οὖν,
ὥσπερ ἐν τοῖς Ἀναλυτικοῖς λέγεται, οὕτω τέτακται.
ὁμοίως δὲ ἔχει κἂν καθόλου τοῦ ὀνόματος ᾖ
ἡ κατάφασις, οἷον πᾶς ἐστὶν ἄνθρωπος δίκαιος.
ἀπόφασις τούτου, οὐ πᾶς ἐστὶν ἄνθρωπος δίκαιος.
35 πᾶς ἐστὶν ἄνθρωπος οὐ δίκαιος—οὐ πᾶς ἐστὶν

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[a] Called *tertii adiacentis*, 'propositions of the third adjacent,' by later logicians.

a time-reference also. And, therefore, 'man is,' 'man is not,' form the first affirmation and denial. 'Not-man is,' 'not-man is not' follow. Again, we have these propositions, 'every man is' and 'every not-man is'—'every man is not,' 'every not-man is not.' Just the same reasoning applies in regard to times future and past.

Where there are two other terms and the term 'is' is used as a third, there are possible two distinct types of affirmative and negative statements.[a] We take 'man is just' for example. The word 'is' is here a third term, be it called verb or noun, in the sentence. And, therefore, from these terms or factors we form in all four propositions. Two correspond in their sequence, in respect of affirmation and denial, with those propositions or judgements which refer to a state of privation. The others, however, do not. Supposing, I mean, the verb 'is' to be added to 'just' or 'not just,' we shall have two affirmative judgements; supposing that 'is not' is added, we then have two negative judgements. Together these make up the four. This the subjoined examples make clear :—

Affirmations	Negations
Man is just.	Man is not just.
Man is not-just.	Man is not not-just.

Now 'is' and 'is not' in these cases are added to 'just' or 'not-just.' In this way are these statements arranged, as we said in the *Prior Analytics*. Supposing the subject distributed, we find that the rule is the same :—

Affirmations	Negations
Every man is just.	Not every man is just.
Every man is not-just.	Not every man is not-just.

19 b ἄνθρωπος οὐ δίκαιος. πλὴν οὐχ ὁμοίως τὰς κατὰ διάμετρον ἐνδέχεται συναληθεύειν· ἐνδέχεται δὲ ποτέ.

Αὗται μὲν οὖν δύο ἀντίκεινται, ἄλλαι δὲ δύο πρὸς τὸ οὐκ ἄνθρωπος ὡς ὑποκείμενόν τι προστεθέντος,[1] ἔστι δίκαιος οὐκ-ἄνθρωπος—οὐκ ἔστι δίκαιος οὐκ-ἄνθρωπος, ἔστιν-οὐ δίκαιος οὐκ-ἄνθρωπος—20 a οὐκ ἔστιν οὐ-δίκαιος οὐκ-ἄνθρωπος. πλείους δὲ τούτων οὐκ ἔσονται ἀντιθέσεις. αὗται δὲ χωρὶς ἐκείνων αὐταὶ καθ' ἑαυτὰς ἔσονται, ὡς ὀνόματι τῷ οὐκ ἄνθρωπος χρώμεναι.

Ἐφ' ὅσων δὲ τὸ ἔστι μὴ ἁρμόττει, οἷον ἐπὶ τοῦ 5 ὑγιαίνει καὶ βαδίζει, ἐπὶ τούτων τὸ αὐτὸ ποιεῖ οὕτω τιθέμενον ὡς ἂν εἰ τὸ ἔστι προσήπτετο, οἷον ὑγιαίνει πᾶς ἄνθρωπος—οὐχ ὑγιαίνει πᾶς ἄνθρωπος, ὑγιαίνει πᾶς οὐκ ἄνθρωπος—οὐχ ὑγιαίνει πᾶς οὐκ

[1] προστεθὲν B.

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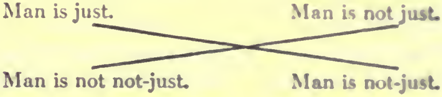
[a] I give the text here as it stands. But there should be some tables arranging all these eight propositions in the order we find in the *Prior Analytics*, 51 b 36. Hence the reference here to that text. But, if tables there were in the Greek at one time, they are no longer there. And 'the statements diagonally joined' are no longer diagonally joined. And in each case the four propositions are differently arranged in the Greek from the order in the *Prior Analytics*, as the reader will see from the following, that stand for the three missing schemes:—

1



Man is just. Man is not just.

Man is not not-just. Man is not-just.

There is no possibility here, in the same way as in the first case, that the statements diagonally joined in the scheme should be both of them true. None the less, they may sometimes be so.

Thus two pairs of opposed propositions have duly been set out above, and two others will follow, provided a third term is added to ' not-man,' regarded as some sort of subject :—

Affirmations	Negations
Not-man is just.	Not-man is not just.
Not-man is not-just.	Not-man is not not-just.

More pairs of opposed propositions cannot be discovered than these. But the last of these groups should be viewed as distinct from the two that precede it from its having ' not-man ' for a subject.[a]

Where ' is ' does not suit as a verb and we use ' walks,' ' has health ' and the like, then the same sort of scheme is produced as we get, when the verb ' is ' is used. We have, for example, the following :—

Every man is healthy.	Every man is not healthy.
Every not-man is healthy.	Every not-man is not healthy.

2

Every man is just.	Not every man is just.
Not every man is not-just.	Every man is not-just.

3

Not-man is just.	Not-man is not just.
Not-man is not not-just.	Not-man is not-just.

The diagonal lines in each scheme are intended, therefore, to connect the affirmations and denials respectively.

ἄνθρωπος. οὐ γάρ ἐστι τὸ οὐ πᾶς ἄνθρωπος λεκτέον, ἀλλὰ τὸ οὔ, τὴν ἀπόφασιν, τῷ ἄνθρωπος προσθετέον. τὸ γὰρ πᾶς οὐ τὸ καθόλου σημαίνει, ἀλλ' ὅτι καθόλου. δῆλον δὲ ἐκ τοῦδε, ὑγιαίνει ἄνθρωπος—οὐχ ὑγιαίνει ἄνθρωπος, ὑγιαίνει οὐκ ἄνθρωπος—οὐχ ὑγιαίνει οὐκ ἄνθρωπος. ταῦτα γὰρ ἐκείνων διαφέρει τῷ μὴ καθόλου εἶναι. ὥστε τὸ πᾶς ἢ οὐδεὶς οὐδὲν ἄλλο προσσημαίνει ἢ ὅτι καθόλου τοῦ ὀνόματος ἢ κατάφασιν ἢ ἀπόφασιν. τὰ δὲ ἄλλα τὰ αὐτὰ δεῖ προστιθέναι.

Ἐπεὶ δὲ ἐναντία ἀπόφασίς ἐστι τῇ ἅπαν ἐστὶ ζῷον δίκαιον ἡ σημαίνουσα ὅτι οὐδέν ἐστι ζῷον δίκαιον, αὗται μὲν φανερὸν ὅτι οὐδέποτε ἔσονται οὔτε ἀληθεῖς ἅμα οὔτε ἐπὶ τοῦ αὐτοῦ, αἱ δὲ ἀντικείμεναι ταύταις ἔσονταί ποτε, οἷον οὐ πᾶν ζῷον δίκαιον καὶ ἔστι τι ζῷον δίκαιον. ἀκολουθοῦσι δὲ αὗται, τῇ μὲν πᾶς ἄνθρωπος οὐ δίκαιός ἐστιν ἡ οὐδείς ἐστιν ἄνθρωπος δίκαιος, τῇ δὲ ἔστι τις ἄνθρωπος δίκαιος ἡ ἀντικειμένη ὅτι οὐ πᾶς ἄνθρωπός ἐστιν οὐ δίκαιος· ἀνάγκη γὰρ εἶναί τινα.

Φανερὸν δὲ καὶ ὅτι ἐπὶ μὲν τῶν καθ' ἕκαστον, εἰ ἀληθὲς ἐρωτηθέντα ἀποφῆσαι, ὅτι καὶ καταφῆσαι ἀληθές· οἷον ἆρά γε Σωκράτης σοφός; οὔ. Σωκράτης ἄρα οὐ σοφός. ἐπὶ δὲ τῶν καθόλου

We must always beware in such cases of speaking of 'not every man.' For the 'not' must be added to 'man,' since the subject is not a universal in virtue of having an 'every,' but the adjective 'every' indicates that the subject, as such, is distributed. This will be seen from the following:

Man is healthy.	Man is not healthy.
Not-man is healthy.	Not-man is not healthy.

These differ from the former propositions on account of their being indefinite and not universal in form. Thus the adjectives 'every' and 'no' signify nothing more than the fact, be the statement affirmative or negative, that the subject itself is distributed. The rest of the statement will, therefore, remain in all cases unchanged.

'Every animal is just' has for contrary the statement 'no animal is just'; it is clear, then, these two propositions can never hold good of one subject nor ever together be true. But their two contradictories will sometimes turn out to be both of them true. That is, 'not every animal is just' and 'some animals are just' are both true. Then from 'every man is not-just' there follows the statement that 'no man is just'; 'not every man is not-just,' its opposite, follows from 'some men are just.' For there must, indeed, be some just men.

When the subject is individual, provided a question is asked and the negative answer is true, then a certain affirmative statement must also manifestly be true. Take the question 'Is Socrates wise?' Let the negative answer be true. 'Socrates then is unwise' can at once be correctly inferred. In the case of universals, however, not a similar but a negative

οὐκ ἀληθὴς ἡ ὁμοίως λεγομένη, ἀληθὴς δὲ ἡ ἀπόφασις, οἷον ἆρά γε πᾶς ἄνθρωπος σοφός; οὔ. πᾶς ἄρα ἄνθρωπος οὐ σοφός· τοῦτο γὰρ ψεῦδος. ἀλλὰ τὸ οὐ πᾶς ἄρα ἄνθρωπος σοφός ἀληθές· αὕτη δέ ἐστιν ἡ ἀντικειμένη, ἐκείνη δὲ ἡ ἐναντία.

Αἱ δὲ κατὰ τὰ ἀόριστα ἀντικείμεναι ὀνόματα καὶ ῥήματα, οἷον ἐπὶ τοῦ μὴ ἄνθρωπος καὶ μὴ δίκαιος, ὥσπερ ἀποφάσεις ἄνευ ὀνόματος καὶ ῥήματος δόξειαν ἂν εἶναι. οὐκ εἰσὶ δέ· ἀεὶ γὰρ ἀληθεύειν ἀνάγκη ἢ ψεύδεσθαι τὴν ἀπόφασιν, ὁ δ' εἰπὼν οὐκ ἄνθρωπος οὐδὲν μᾶλλον τοῦ εἰπόντος ἄνθρωπος ἀλλὰ καὶ ἧττον ἠλήθευκέ τι ἢ ἔψευσται, ἐὰν μήτι προστεθῇ. σημαίνει δὲ τὸ ἔστι πᾶς οὐκ-ἄνθρωπος δίκαιος οὐδεμιᾷ ἐκείνων ταὐτόν, οὐδὲ ἡ ἀντικειμένη ταύτῃ ἡ οὐκ ἔστι πᾶς οὐκ-ἄνθρωπος δίκαιος· τὸ δὲ πᾶς οὐ δίκαιος οὐκ ἄνθρωπος τῷ οὐδεὶς δίκαιος οὐκ ἄνθρωπος ταὐτὸν σημαίνει.

Μετατιθέμενα δὲ τὰ ὀνόματα καὶ τὰ ῥήματα ταὐτὸν σημαίνει, οἷον ἔστι λευκὸς ἄνθρωπος, ἔστιν ἄνθρωπος λευκός. εἰ γὰρ μὴ τοῦτό ἐστι, τοῦ αὐτοῦ πλείους ἔσονται ἀποφάσεις. ἀλλ' ἐδέδεικτο ὅτι μία μιᾶς. τοῦ μὲν γὰρ ἔστι λευκὸς ἄνθρωπος ἀπόφασις τὸ οὐκ ἔστι λευκὸς ἄνθρωπος· τοῦ δὲ ἔστιν ἄνθρωπος λευκός, εἰ μὴ ἡ αὐτή ἐστι τῇ ἔστι λευκὸς ἄνθρωπος, ἔσται ἀπόφασις ἤτοι τὸ οὐκ ἔστιν οὐκ ἄνθρωπος λευκός ἢ τὸ οὐκ ἔστιν ἄν-

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[a] Meaning, of the positive answer to the question as opposed to the negative.

[b] That is, ' man ' is regarded in both as constituting the grammatical subject, the inversion being purely ' rhetorical.' The order of words would, however, depend *in a definite context* on the primary *interest* of the speaker. It depends

inference would rather appear to be true. If the negative answer is true to the question ' Is every man wise ? ' to infer that ' every man is unwise ' would, in those circumstances, be false, and ' not every man is wise ' is correct. The latter is the contradictory and the former the contrary statement.[a]

Indefinite predicates and nouns, such, for instance, as ' not-man,' ' not-just,' might appear to be actual negations without any noun, any verb, as those terms are more properly used. This, however, is not really so. Of necessity every negation must either be true or be false, and whoever says ' not-man,' for instance, provided that nothing is added, is speaking not more but less truly or falsely than he who says ' man.' ' Every not-man is just ' is a statement, which is not in its meaning equivalent to any proposition we mentioned, nor yet is its contradictory or ' not every not-man is just.' ' Every not-man is not just,' however, amounts to the same thing as saying that ' nothing that is not man is just.'

You can transpose the subject and predicate. No change in the meaning, however, of the sentence is thereby involved. Thus we say ' man is white,' ' white is man.'[b] For, if these did not mean the same thing, we should have more negations than one corresponding to the same affirmation. But we showed there was one and one only. Of ' man is white,' that is to say, the negation is ' man is not white,' and of ' white is man,' if we suppose that it differs in some way in sense, ' white is not man ' or ' white

on his *interest* whether he will say in a definite context, ' So-and-so is Prime Minister of England,' or will put it the other way round. But to go into such points would raise the whole question of Aristotle's logic, its character and actual relation to concrete and live human thinking.

20 b θρωπος λευκός. ἀλλ' ἡ ἑτέρα μὲν ἐστιν ἀπόφασις
τοῦ ἔστιν οὐκ ἄνθρωπος λευκός, ἡ ἑτέρα δὲ τοῦ
10 ἔστι λευκὸς ἄνθρωπος, ὥστε ἔσονται δύο μιᾶς.
ὅτι μὲν οὖν μετατιθεμένου τοῦ ὀνόματος καὶ τοῦ
ῥήματος ἡ αὐτὴ γίνεται κατάφασις καὶ ἀπόφασις,
δῆλον.

XI. Τὸ δὲ ἓν κατὰ πολλῶν ἢ πολλὰ καθ' ἑνὸς
15 καταφάναι ἢ ἀποφάναι, ἐὰν μὴ ἕν τι ᾖ τὸ ἐκ τῶν
πολλῶν δηλούμενον, οὐκ ἔστι κατάφασις μία οὐδὲ
ἀπόφασις. λέγω δὲ ἓν οὐκ ἐὰν ὄνομα ἓν ᾖ κείμενον,
μὴ ᾖ δὲ ἕν τι ἐξ ἐκείνων, οἷον ὁ ἄνθρωπος
ἴσως ἐστὶ καὶ ζῷον καὶ δίπουν καὶ ἥμερον, ἀλλὰ
καὶ ἕν τι γίνεται ἐκ τούτων· ἐκ δὲ τοῦ λευκοῦ
καὶ τοῦ ἀνθρώπου καὶ τοῦ βαδίζειν οὐχ ἕν. ὥστε
20 οὔτ' ἐὰν ἕν τι κατὰ τούτων καταφήσῃ τις μία
κατάφασις, ἀλλὰ φωνὴ μὲν μία καταφάσεις δὲ
πολλαί, οὔτε ἐὰν καθ' ἑνὸς ταῦτα, ἀλλ' ὁμοίως
πολλαί.

Εἰ οὖν ἡ ἐρώτησις ἡ διαλεκτικὴ ἀποκρίσεώς
ἐστιν αἴτησις, ἢ τῆς προτάσεως ἢ θατέρου μορίου
τῆς ἀντιφάσεως, ἡ δὲ πρότασις ἀντιφάσεως μιᾶς
μόριον, οὐκ ἂν εἴη ἀπόκρισις μία πρὸς ταῦτα·
25 οὐδὲ γὰρ ἡ ἐρώτησις μία, οὐδ' ἐὰν ᾖ ἀληθής.
εἴρηται δὲ ἐν τοῖς Τοπικοῖς[a] περὶ αὐτῶν. ἅμα δὲ
δῆλον ὅτι οὐδὲ τὸ τί ἐστιν ἐρώτησίς ἐστι διαλεκτική·
δεῖ γὰρ δεδόσθαι ἐκ τῆς ἐρωτήσεως ἑλέσθαι
ὁπότερον βούλεται τῆς ἀντιφάσεως μόριον ἀποφήνασθαι.
ἀλλὰ δεῖ τὸν ἐρωτῶντα προσδιορίσαι
30 πότερον τόδε ἐστὶν ὁ ἄνθρωπος ἢ οὐ τοῦτο.

Ἐπεὶ δὲ τὰ μὲν κατηγορεῖται συντιθέμενα, ὡς

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[a] viii. 7.

is not not-man.' For the former negates 'man is white,' and the latter negates 'white is not-man.' There will, therefore, be two contradictories of one and the same affirmation. To transpose the subject and predicate, therefore, makes no alteration in the sense of affirmations and denials.

XI. A proposition is not one but several that predicates one thing of many or many of one and the same in a positive or negative manner, unless what the many denote, in reality, is only one thing. I am not using 'one' of such things as do not, although having one name, coalesce into one total unity. Man is animal, biped, domesticated: these coalesce into one, whereas 'white,' 'man' and 'walking' do not. Should we predicate these of one subject or affirm a single predicate of them, the resulting proposition would be single in no sense except the linguistic.

If, then, the dialectical question consists in requesting an answer—the granting, that is, of a premiss or of one out of two contradictories (such as each premiss itself is)—the answer to any such question as contains the aforementioned predicates cannot be one proposition. Though the answer sought for may be true, yet the question is not one but several. But this I explained in my *Topics*.[a] At the same time the question 'what is it?' is not a dialectical question. And this will be clear from the fact that the question ought so to be framed as to give the respondent the chance to enunciate whichever he pleases of two contradictory answers. The question must be made more specific, inquiring, for example, whether man has or has not some definite quality.

In certain combinations of predicates we find that

20 b ἓν τὸ πᾶν κατηγόρημα τῶν χωρὶς κατηγορουμένων,
τὰ δ' οὔ, τίς ἡ διαφορά; κατὰ γὰρ τοῦ ἀνθρώπου
ἀληθὲς εἰπεῖν καὶ χωρὶς ζῷον καὶ χωρὶς δίπουν,
35 καὶ ταῦτα ὡς ἕν, καὶ ἄνθρωπον καὶ λευκόν, καὶ
ταῦθ' ὡς ἕν. ἀλλ' οὐχί, εἰ σκυτεὺς καὶ ἀγαθός,
καὶ σκυτεὺς ἀγαθός. εἰ γάρ, ὅτι ἑκάτερον ἀληθές,
εἶναι δεῖ καὶ τὸ συνάμφω, πολλὰ καὶ ἄτοπα ἔσται.
κατὰ γὰρ τοῦ ἀνθρώπου καὶ τὸ ἄνθρωπος ἀληθὲς
καὶ τὸ λευκόν, ὥστε καὶ τὸ ἅπαν. πάλιν εἰ τὸ
40 λευκὸν αὐτό, καὶ τὸ ἅπαν, ὥστε ἔσται ἄνθρωπος
21 a λευκὸς λευκός, καὶ τοῦτο εἰς ἄπειρον. καὶ πάλιν
μουσικὸς λευκὸς βαδίζων· καὶ ταῦτα πολλάκις
πεπλεγμένα.[1] ἔτι εἰ ὁ Σωκράτης Σωκράτης καὶ
ἄνθρωπος, καὶ Σωκράτης ἄνθρωπος.[2] καὶ εἰ
5 ἄνθρωπος καὶ δίπους, καὶ ἄνθρωπος δίπους.[3]

Ὅτι μὲν οὖν εἴ τις ἁπλῶς φήσει τὰς συμπλοκὰς
γίνεσθαι, πολλὰ συμβαίνει λέγειν ἄτοπα, δῆλον·
ὅπως δὲ θετέον, λέγομεν νῦν.

Τῶν δὴ κατηγορουμένων, καὶ ἐφ' οἷς κατηγορεῖσθαι
10 συμβαίνει, ὅσα μὲν λέγεται κατὰ συμβεβηκὸς
ἢ κατὰ τοῦ αὐτοῦ ἢ θάτερον κατὰ θατέρου, ταῦτα
οὐκ ἔσται ἕν, οἷον ἄνθρωπος λευκός ἐστι καὶ
μουσικός, ἀλλ' οὐχ ἓν τὸ λευκὸν καὶ τὸ μουσικόν·
συμβεβηκότα γὰρ ἄμφω τῷ αὐτῷ. οὐδ' εἰ τὸ
λευκὸν μουσικὸν ἀληθὲς εἰπεῖν, ὅμως οὐκ ἔσται
τὸ μουσικὸν λευκὸν ἕν τι· κατὰ συμβεβηκὸς γὰρ

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[1] B. adds *εἰς ἄπειρον.*

[2] *καὶ Σωκράτης Σωκράτης ἄνθρωπος* B.

[3] *καὶ ἄνθρωπος ἄνθρωπος δίπους* B.

the separate predicates fuse themselves into one predicate; in others, again, they do not. How, we ask, does this difference arise? We can either use two propositions and state, first, that man is an animal, secondly, that man is a biped, or, combining the two into one, state that man is a two-footed animal. So we may use 'man' and 'white.' This is not so with 'cobbler' and 'good.' Though a man is a cobbler and good, yet we cannot combine them together and pronounce him also 'a good cobbler.' For if we can say that, whenever both predicates, separately taken, are truly affirmed of one subject, both also, when taken together, are truly affirmed of that subject, then many absurdities follow. A man is a man and is white. He will, therefore, be also a white man. And, if he is white, then it follows the composite also is white, which will give us 'a white, white man,' and so we go on to infinity. Take 'musical,' 'walking' and 'white': these may all be combined many times. And of Socrates, too, we may say 'he is Socrates,' 'he is a man,' and is, therefore, the man Socrates. We may call him a man and a biped and, therefore, a two-footed man.

To maintain, then, that predicates can always be combined without any exception leads clearly to many absurdities. Let us, then, state the real case.

Predicates, if accidental to the subject or one to the other, do not coalesce into one. We may say 'man is musical and white.' Being musical and whiteness, however, do not coalesce into one, being both accidental to the subject. Nor, even if everything white could be truly said to be musical, would 'musical' and 'white' form a unity; for only, indeed, incidentally is that which is musical white.

21 a 15 τὸ μουσικὸν λευκόν, ὥστε οὐκ ἔσται τὸ λευκὸν μουσικὸν ἕν τι. διὸ οὐδ' σκυτεὺς[1] ἁπλῶς ἀγαθός, ἀλλὰ ζῷον δίπουν· οὐ γὰρ κατὰ συμβεβηκός.

Ἔτι οὐδ' ὅσα ἐνυπάρχει ἐν τῷ ἑτέρῳ. διὸ οὔτε τὸ λευκὸν πολλάκις οὔτε ὁ ἄνθρωπος ἄνθρωπος ζῷόν ἐστιν ἢ δίπουν· ἐνυπάρχει γὰρ ἐν τῷ ἀνθρώπῳ τὸ ζῷον καὶ τὸ δίπουν. ἀληθὲς δέ ἐστιν εἰπεῖν 20 κατὰ τοῦ τινὸς καὶ ἁπλῶς, οἷον τὸν τινὰ ἄνθρωπον ἄνθρωπον ἢ τὸν τινὰ λευκὸν ἄνθρωπον ἄνθρωπον λευκόν· οὐκ ἀεὶ δέ, ἀλλ' ὅταν μὲν ἐν τῷ προσκειμένῳ τῶν ἀντικειμένων τι ἐνυπάρχῃ ᾧ ἕπεται ἀντίφασις, οὐκ ἀληθὲς ἀλλὰ ψεῦδος, οἷον τὸν τεθνεῶτα ἄνθρωπον ἄνθρωπον εἰπεῖν, ὅταν δὲ μὴ ἐνυπάρχῃ, ἀληθές. ἢ ὅταν μὲν ἐνυπάρχῃ, ἀεὶ οὐκ 25 ἀληθές, ὅταν δὲ μὴ ἐνυπάρχῃ, οὐκ ἀεὶ ἀληθές, ὥσπερ Ὅμηρός ἐστί τι, οἷον ποιητής. ἆρ' οὖν καὶ ἔστιν, ἢ οὔ; κατὰ συμβεβηκὸς γὰρ κατηγορεῖται τοῦ Ὁμήρου τὸ ἔστιν· ὅτι γὰρ ποιητής ἐστιν, ἀλλ' οὐ καθ' αὐτό, κατηγορεῖται κατὰ τοῦ Ὁμήρου τὸ ἔστιν.

30 Ὥστε ἐν ὅσαις κατηγορίαις μήτε ἐναντιότης ἔνεστιν, ἐὰν λόγοι ἀντ' ὀνομάτων λέγωνται, καὶ καθ' ἑαυτὰ κατηγορῆται καὶ μὴ κατὰ συμβεβηκός,

[1] ὁ σκυτεὺς B.

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[a] Otherwise, in the sense of existence. For the word 'is' expresses 'exists' in addition to being the copula.

And so being musical and whiteness will not coalesce into one. If a man is both good and a cobbler, we cannot combine the two terms and thus call him also ‘ a good cobbler.’ But we can combine ‘ animal ’ and ‘ biped ’ and call man a two-footed animal ; for these terms are not accidental.

Again, predicates cannot form one, of which one is implied in the other. So we cannot combine ‘ white ’ repeatedly with that which already contains it or call a man animal-man, for example, or two-footed man. That is, ‘ animal ’ and ‘ biped ’ are notions already implicit in ‘ man.’ But we certainly *can* use a predicate simply of one single case, saying this or that man is a man, a particular white man a white man. Not always is this so, however. When we find in the adjunct some opposite such as implies contradictories, we then should speak falsely, not truly, in making the simple predication, as in calling a dead man a man. Where there is, on the contrary, no opposite, the simple predication will be true. Or we might rather put the case thus. For, supposing that there is an opposite, we cannot make the simple predication ; where, however, there is no such opposite, we still cannot always do so. For example, take ‘ Homer is something ’—‘ a poet ’ will do for our purpose. But can we say also ‘ he *is* ’ ? Or will that be incorrectly inferred ? ‘ Is ’ was used incidentally here. For our statement was ‘ he is a poet,’ and ‘ is ’ was not predicated of him in the substantive sense of the word.[a]

Therefore, in those predications having no contradiction inherent, if nouns are replaced by definitions and the predicates are not accidental, belonging to

ἐπὶ τούτων τὸ τὶ καὶ ἁπλῶς ἀληθὲς ἔσται εἰπεῖν. τὸ δὲ μὴ ὄν, ὅτι δοξαστόν, οὐκ ἀληθὲς εἰπεῖν ὄν τι· δόξα γὰρ αὐτοῦ οὐκ ἔστιν ὅτι ἔστιν, ἀλλ' ὅτι οὐκ ἔστιν.

XII. Τούτων δὲ διωρισμένων σκεπτέον ὅπως ἔχουσιν αἱ ἀποφάσεις καὶ καταφάσεις πρὸς ἀλλήλας αἱ τοῦ δυνατὸν εἶναι καὶ μὴ δυνατὸν καὶ ἐνδεχόμενον καὶ μὴ ἐνδεχόμενον, καὶ περὶ τοῦ ἀδυνάτου τε καὶ ἀναγκαίου· ἔχει γὰρ ἀπορίας τινάς. εἰ γὰρ τῶν συμπλεκομένων αὗται ἀλλήλαις ἀντίκεινται ἀντιφάσεις, ὅσαι κατὰ τὸ εἶναι καὶ μὴ εἶναι τάττονται, οἷον τοῦ εἶναι ἄνθρωπον ἀπόφασις τὸ μὴ εἶναι ἄνθρωπον, οὐ τὸ εἶναι μὴ ἄνθρωπον, καὶ τοῦ εἶναι λευκὸν ἄνθρωπον τὸ μὴ εἶναι λευκὸν ἄνθρωπον, ἀλλ' οὐ τὸ εἶναι μὴ λευκὸν ἄνθρωπον. εἰ γὰρ κατὰ παντὸς ἡ κατάφασις ἢ ἡ ἀπόφασις, τὸ ξύλον ἔσται ἀληθὲς εἰπεῖν εἶναι μὴ λευκὸν ἄνθρωπον. εἰ δὲ τοῦτο οὕτως, καὶ ὅσοις τὸ εἶναι μὴ προστίθεται, τὸ αὐτὸ ποιήσει τὸ ἀντὶ τοῦ εἶναι λεγόμενον, οἷον τοῦ ἄνθρωπος βαδίζει οὐ τὸ οὐκ ἄνθρωπος βαδίζει ἀπόφασις ἔσται, ἀλλὰ τὸ οὐ βαδίζει ἄνθρωπος· οὐδὲν γὰρ διαφέρει εἰπεῖν ἄνθρωπον βαδίζειν ἢ ἄνθρωπον βαδίζοντα εἶναι. ὥστε εἰ οὕτως πανταχοῦ, καὶ τοῦ δυνατὸν εἶναι ἀπόφασις ἔσται τὸ δυνατὸν μὴ εἶναι, ἀλλ' οὐ τὸ μὴ δυνατὸν εἶναι.

Δοκεῖ δὲ τὸ αὐτὸ δύνασθαι καὶ εἶναι καὶ μὴ εἶναι· πᾶν γὰρ τὸ δυνατὸν τέμνεσθαι ἢ βαδίζειν

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[a] 'A log is a white man' is false: the contradictory, then, must be true, or 'a log is a not-white man,' provided that

the things in themselves, the individual may well be the subject also of the simple propositions. As, however, for that which is *not*, it is not true to say it 'is' somewhat, because it is matter of opinion. The opinion about it is not that it is; it is that it is not.

XII. Having made the foregoing distinctions, we must prove the relations subsisting between affirmations and denials affirming or denying the possible, contingent, impossible, necessary—a question not wanting in difficulty. Grant that those composite expressions containing the verbs 'is' and 'is not' are mutually contradictory. Take, for example, 'man is'; 'man is not' is the true contradictory—*not*, be it noted, 'not-man is.' Or take 'man is white'; then we have 'man is not white,' and *not* 'man is not-white.' For, were this not so, inasmuch as the affirmative or negative statement is true of all subjects whatever, it would prove to be true to affirm that 'a log is a not-white man.' [a]

All this may be readily granted, but what of those numerous statements that do not contain 'is' or 'is not,' some other verb taking its place? If the views just expressed are correct, then the latter performs the same function. 'Man walks' has for contradictory, in consequence, 'man does not walk.' And to say that 'not-man walks' is wrong. For the two propositions, 'man walks,' 'man is walking,' mean just the same thing. Now, if all this is always the case, it applies to 'it may be' as well. Not 'it cannot be' but 'it may *not*-be' is, therefore, its true contradictory.

However, it certainly seems that the same thing may be and not be. Thus, for instance, whatever

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the statement 'man is white' could have 'man is not-white' for contradictory.

καὶ μὴ βαδίζειν καὶ μὴ τέμνεσθαι δυνατόν. λόγος δέ, ὅτι ἅπαν τὸ οὕτω δυνατὸν οὐκ ἀεὶ ἐνεργεῖ, ὥστε ὑπάρξει αὐτῷ καὶ ἡ ἀπόφασις· δύναται γὰρ καὶ μὴ βαδίζειν τὸ βαδιστικὸν καὶ μὴ ὁρᾶσθαι τὸ ὁρατόν.

Ἀλλὰ μὴν ἀδύνατον κατὰ τοῦ αὐτοῦ ἀληθεύεσθαι τὰς ἀντικειμένας φάσεις· οὐκ ἄρα τοῦ δυνατὸν εἶναι ἀπόφασίς ἐστι τὸ δυνατὸν μὴ εἶναι. συμβαίνει γὰρ ἐκ τούτων ἢ τὸ αὐτὸ φάναι καὶ ἀποφάναι ἅμα καὶ κατὰ τοῦ αὐτοῦ, ἢ μὴ κατὰ τὸ εἶναι καὶ μὴ εἶναι τὰ προστιθέμενα γίνεσθαι φάσεις καὶ ἀποφάσεις. εἰ οὖν ἐκεῖνο ἀδύνατον, τοῦτ' ἂν εἴη αἱρετόν.

Ἔστιν ἄρα ἀπόφασις τοῦ δυνατὸν εἶναι τὸ μὴ δυνατὸν εἶναι. ὁ δ' αὐτὸς λόγος καὶ περὶ τοῦ ἐνδεχόμενον εἶναι· καὶ γὰρ τούτου ἀπόφασις τὸ μὴ ἐνδεχόμενον εἶναι. καὶ ἐπὶ τῶν ἄλλων δὲ ὁμοιοτρόπως, οἷον ἀναγκαίου τε καὶ ἀδυνάτου. γίνεται γὰρ ὥσπερ ἐπ' ἐκείνων τὸ εἶναι καὶ τὸ μὴ εἶναι προσθέσεις, τὰ δ' ὑποκείμενα πράγματα τὸ μὲν λευκὸν τὸ δ' ἄνθρωπος, οὕτως ἐνταῦθα τὸ μὲν εἶναι καὶ μὴ εἶναι ὡς ὑποκείμενον γίνεται, τὸ δὲ δύνασθαι καὶ τὸ ἐνδέχεσθαι προσθέσεις διορίζουσαι, ὥσπερ ἐπ' ἐκείνων τὸ εἶναι καὶ μὴ εἶναι τὸ ἀληθὲς καὶ τὸ ψεῦδος, ὁμοίως αὗται ἐπὶ τοῦ εἶναι δυνατὸν καὶ εἶναι οὐ δυνατόν.

Τοῦ δὲ δυνατὸν μὴ εἶναι ἀπόφασις οὐ τὸ οὐ δυνατὸν εἶναι, ἀλλὰ τὸ οὐ δυνατὸν μὴ εἶναι, καὶ τοῦ δυνατὸν εἶναι οὐ τὸ δυνατὸν μὴ εἶναι, ἀλλὰ τὸ μὴ δυνατὸν εἶναι. διὸ καὶ ἀκολουθεῖν ἂν δόξειαν

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[a] Grote has called these 'intermittent realities' (*Aristotle*, p. 128).

may walk or be cut may not walk or be cut. And the reason for this is that such things as are in this manner potential do not at all times energize.[a] Both the positive and negative statements will, therefore, be true in such cases. For that which may walk or be seen may, *per contra*, not walk nor be seen.

None the less, contradictory statements can never be true of one subject. And so we conclude that ' it may be ' has not, after all, ' it may *not* be ' by way of its proper negation. For it follows from our previous statements that we can at one time of one subject affirm and deny the same predicate or it is not, in reality, the adding the verb ' is ' or ' is not ' that makes an affirmation or denial. The former position is impossible ; the latter must thus be adopted.

' It cannot be,' not ' it may not be,' is, therefore, the proper negation. With ' it is contingent it should be ' we deal in a similar manner, its true contradictory being ' it is not contingent it should be.' So, too, with the like propositions, ' it is necessary,' ' it is impossible.' As in the earlier instances ' is ' and ' is not ' have been added to the underlying things, so to speak—otherwise, the two terms, ' white ' and ' man '—so in these ' it should be,' ' it should not be,' are viewed as the things underlying, to which thereupon have been added ' is possible ' and ' is contingent,' additions denoting that something is possible or is not possible, just as the ' is ' or the ' is not ' denoted in the earlier cases that something was true or was not.

The contradictory, then, of ' it may be ' is ' it cannot be,' not ' it may *not* be,' of which the contradictory, in turn, is ' it cannot not be,' not ' it cannot be.' So on these grounds it appears that ' it may be '

21 b ἀλλήλαις αἱ τοῦ δυνατὸν εἶναι καὶ δυνατὸν μὴ
εἶναι· τὸ γὰρ αὐτὸ δυνατὸν εἶναι καὶ μὴ εἶναι·
οὐ γὰρ ἀντιφάσεις ἀλλήλων αἱ τοιαῦται, τὸ δυνατὸν
εἶναι καὶ δυνατὸν μὴ εἶναι. ἀλλὰ τὸ δυνατὸν
22 a εἶναι καὶ μὴ δυνατὸν εἶναι οὐδέποτε ἐπὶ τοῦ αὐτοῦ
ἅμα ἀληθεύονται· ἀντίκεινται γάρ. οὐδέ γε τὸ
δυνατὸν μὴ εἶναι καὶ οὐ δυνατὸν μὴ εἶναι οὐδέποτε
ἅμα ἐπὶ τοῦ αὐτοῦ ἀληθεύονται.

Ὁμοίως δὲ καὶ τοῦ ἀναγκαῖον εἶναι ἀπόφασις
5 οὐ τὸ ἀναγκαῖον μὴ εἶναι, ἀλλὰ τὸ μὴ ἀναγκαῖον
εἶναι· τοῦ δὲ ἀναγκαῖον μὴ εἶναι τὸ μὴ ἀναγκαῖον
μὴ εἶναι. καὶ τοῦ ἀδύνατον εἶναι οὐ τὸ ἀδύνατον
μὴ εἶναι, ἀλλὰ τὸ μὴ ἀδύνατον εἶναι· τοῦ δὲ
ἀδύνατον μὴ εἶναι τὸ οὐκ ἀδύνατον μὴ εἶναι.

Καὶ καθόλου δέ, ὥσπερ εἴρηται, τὸ μὲν εἶναι
10 καὶ μὴ εἶναι δεῖ τιθέναι ὡς τὰ ὑποκείμενα,
κατάφασιν δὲ καὶ ἀπόφασιν ταῦτα ποιοῦντα πρὸς τὸ
εἶναι καὶ μὴ εἶναι συντάττειν. καὶ ταύτας οἴεσθαι
χρὴ εἶναι τὰς ἀντικειμένας φάσεις, δυνατόν—οὐ
δυνατόν, ἐνδεχόμενον—οὐκ ἐνδεχόμενον, ἀδύνατον
—οὐκ ἀδύνατον, ἀναγκαῖον—οὐκ ἀναγκαῖον, ἀληθές
—οὐκ ἀληθές.

XIII. Καὶ αἱ ἀκολουθήσεις δὲ κατὰ λόγον γίνον-

implies ' it may *not* be,' as also the latter the former. These statements not being contradictory, the same thing may be and may *not* be. ' It may be,' however, ' it cannot be,' being contradictory statements, can never be both of them true of one subject at any one time. And the same may be said of the statements ' it cannot *not* be,' ' it may *not* be.'

Propositions concerning necessity are subject to similar rules—' it is necessary that it should be,' ' it is necessary that it should not be.' ' Not necessary that it should be ' will provide the negation of the former, *not* ' necessary that it should not be.' We have, again, taking the latter, ' not necessary that it should not be.' So also with ' it is impossible that it should be ' or ' should not be.' ' Not impossible that it should be ' constitutes the denial of the former, not ' impossible that it should not be ' ; ' not impossible that it should not be ' the proper denial of the latter.

Speaking generally, then, as we said, we must take as the things underlying all such propositions as these ' that it should be ' and ' that it should not be ' and add one or other of these, would we make affirmations or denials of those other terms that we mentioned, of ' possible,' ' contingent ' and so on.

The following pairs must be reckoned as five contradictory pairs :—

It may be.	It cannot be.
It is contingent.	It is not contingent.
It is impossible.	It is not impossible.
It is necessary.	It is not necessary.
It is true.	It is not true.

XIII. From these affirmations and negations set out in the foregoing manner certain consequences logically follow.

ται οὕτω τιθεμένοις· τῷ μὲν γὰρ δυνατὸν εἶναι τὸ ἐνδέχεσθαι εἶναι, καὶ τοῦτο ἐκείνῳ ἀντιστρέφει, καὶ τὸ μὴ ἀδύνατον εἶναι καὶ τὸ μὴ ἀναγκαῖον εἶναι· τῷ δὲ δυνατὸν μὴ εἶναι καὶ ἐνδεχόμενον μὴ εἶναι τὸ μὴ ἀναγκαῖον μὴ εἶναι καὶ τὸ οὐκ ἀδύνατον μὴ εἶναι, τῷ δὲ μὴ δυνατὸν εἶναι καὶ μὴ ἐνδεχόμενον εἶναι τὸ ἀναγκαῖον μὴ εἶναι καὶ τὸ ἀδύνατον εἶναι, τῷ δὲ μὴ δυνατὸν μὴ εἶναι καὶ μὴ ἐνδεχόμενον μὴ εἶναι τὸ ἀναγκαῖον εἶναι καὶ τὸ ἀδύνατον μὴ εἶναι. θεωρείσθω δὲ ἐκ τῆς ὑπογραφῆς ὡς λέγομεν.

δυνατὸν εἶναι	οὐ δυνατὸν εἶναι
ἐνδεχόμενον εἶναι	οὐκ ἐνδεχόμενον εἶναι
οὐκ ἀδύνατον εἶναι	ἀδύνατον εἶναι
οὐκ ἀναγκαῖον εἶναι	ἀναγκαῖον μὴ εἶναι
δυνατὸν μὴ εἶναι	οὐ δυνατὸν μὴ εἶναι
ἐνδεχόμενον μὴ εἶναι	οὐκ ἐνδεχόμενον μὴ εἶναι
οὐκ ἀδύνατον μὴ εἶναι	ἀδύνατον μὴ εἶναι
οὐκ ἀναγκαῖον μὴ εἶναι	ἀναγκαῖον εἶναι

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[a] This is the wrong negation. From statements that follow we see that the table should be corrected and 'it is not necessary that it should be' and 'it is not necessary that it should not be' should be transposed.

Propositions	Implications
1. It may be.	It is contingent. It is not impossible. It is not necessary.
2. It is contingent.	It may be.
3. It may *not* be (it is contingent that it should not be).	It is not necessary that it should not be. It is not impossible that it should not be.
4. It cannot be (it is not contingent).	It is necessary that it should not be. It is impossible that it should be.
5. It cannot not be (it is not contingent that it should not be).	It is necessary that it should be. It is impossible that it should not be.

Consider these points more at length in the light of the table subjoined :—

1	2
It may be.	It cannot be.
It is contingent.	It is not contingent.
It is not impossible that it should be.	It is impossible that it should be.
It is not necessary that it should be.	It is necessary that it should not be.[a]

3	4
It may not be.	It cannot not be.
It is contingent that it should not be.	It is not contingent that it should not be.
It is not impossible that it should not be.	It is impossible that it should not be.
It is not necessary that it should not be.	It is necessary that it should be.

22 a Τὸ μὲν οὖν ἀδύνατον καὶ οὐκ ἀδύνατον τῷ ἐν-
δεχομένῳ καὶ δυνατῷ καὶ οὐκ ἐνδεχομένῳ καὶ μὴ
δυνατῷ ἀκολουθεῖ μὲν ἀντιφατικῶς, ἀντεστραμ-
35 μένως δέ· τῷ μὲν γὰρ δυνατὸν εἶναι ἡ ἀπόφασις
τοῦ ἀδυνάτου ἀκολουθεῖ, τῇ δὲ ἀποφάσει ἡ κατά-
φασις· τῷ γὰρ οὐ δυνατὸν εἶναι τὸ ἀδύνατον εἶναι·
κατάφασις γὰρ τὸ ἀδύνατον εἶναι, τὸ δ' οὐκ
ἀδύνατον εἶναι ἀπόφασις.

Τὸ δ' ἀναγκαῖον πῶς, ὀπτέον. φανερὸν δὴ ὅτι
οὐχ οὕτως ἔχει, ἀλλ' αἱ ἐναντίαι ἕπονται· αἱ δ'
22 b ἀντιφάσεις χωρίς. οὐ γάρ ἐστιν ἀπόφασις τοῦ
ἀνάγκη μὴ εἶναι τὸ οὐκ ἀνάγκη εἶναι· ἐνδέχεται
γὰρ ἀληθεύεσθαι ἐπὶ τοῦ αὐτοῦ ἀμφοτέρας· τὸ
γὰρ ἀναγκαῖον μὴ εἶναι οὐκ ἀναγκαῖον εἶναι.
αἴτιον δὲ τοῦ μὴ ἀκολουθεῖν τὸ ἀναγκαῖον ὁμοίως
5 τοῖς ἑτέροις, ὅτι ἐναντίως τὸ ἀδύνατον τῷ ἀναγ-
καίῳ ἀποδίδοται, τὸ αὐτὸ δυνάμενον. εἰ γὰρ
ἀδύνατον εἶναι, ἀναγκαῖον τοῦτο οὐκ εἶναι ἀλλὰ
μὴ εἶναι· εἰ δὲ ἀδύνατον μὴ εἶναι, τοῦτο ἀνάγκη
εἶναι· ὥστε εἰ ἐκεῖνα ὁμοίως τῷ δυνατῷ καὶ μή,
ταῦτα ἐξ ἐναντίας, ἐπεὶ οὐ σημαίνει γε ταὐτὸν τό
10 τε ἀναγκαῖον καὶ τὸ ἀδύνατον, ἀλλ' ὥσπερ εἴρηται,
ἀντεστραμμένως.

Now, ' impossible that it should be,' ' not impossible that it should be ' are implied in ' may be,' ' is contingent,' and ' cannot be,' ' is not contingent '—contradictorily but with inversion. For ' may be ' implies ' not impossible ' (denial, that is, of ' impossible '); ' impossible,' the positive, follows upon the denial of ' may be ' or, that is to say, upon ' cannot be.'

Now let us see how things stand with propositions predicating necessity. Clearly the case here is different, and contrary statements will follow upon contradictory statements, which latter belong, in addition, to sequences which are distinct. For ' not necessary that it should be ' cannot form the denial or negation of ' necessary that it should not be.' For both of these predicates well may hold good or be true of one subject, as what of necessity is not need not of necessity be. Now, what is the reason why all propositions predicating necessity do not in the same manner follow as the others with which we are dealing? The answer will be found in the fact that when used with a contrary subject, to predicate impossibility amounts to affirming necessity. Supposing, I mean, it impossible for something or other to be, it is necessary, not that it should be, but that it, *per contra*, should not be. Supposing, again, it impossible that something or other should not be, it must of necessity be. So, if those propositions affirming the impossible or the reverse will be found without change of their subject to follow from those predicating possibility or non-possibility, those predicating necessity will follow with the contrary subject. ' It is necessary,' ' it is impossible ' are not of identical meaning and yet are connected inversely—a point upon which we have touched.

22 b Ἢ ἀδύνατον οὕτως κεῖσθαι τὰς τοῦ ἀναγκαίου ἀντιφάσεις; τὸ μὲν γὰρ ἀναγκαῖον εἶναι δυνατὸν εἶναι· εἰ γὰρ μή, ἡ ἀπόφασις ἀκολουθήσει· ἀνάγκη γὰρ ἢ φάναι ἢ ἀποφάναι· ὥστ' εἰ μὴ δυνατὸν εἶναι, ἀδύνατον εἶναι· ἀδύνατον ἄρα εἶναι τὸ ἀναγκαῖον εἶναι, ὅπερ ἄτοπον. ἀλλὰ μὴν τῷ γε δυνατὸν εἶναι τὸ οὐκ ἀδύνατον εἶναι ἀκολουθεῖ, τούτῳ δὲ τὸ μὴ ἀναγκαῖον εἶναι· ὥστε συμβαίνει τὸ ἀναγκαῖον εἶναι μὴ ἀναγκαῖον εἶναι, ὅπερ ἄτοπον. ἀλλὰ μὴν οὐδὲ τὸ ἀναγκαῖον εἶναι ἀκολουθεῖ τῷ δυνατὸν εἶναι, οὐδὲ τὸ ἀναγκαῖον μὴ εἶναι· τῷ μὲν γὰρ ἄμφω ἐνδέχεται συμβαίνειν, τούτων δὲ ὁπότερον ἂν ἀληθὲς ᾖ, οὐκέτι ἔσται ἐκεῖνα ἀληθῆ. ἅμα γὰρ δυνατὸν εἶναι καὶ μὴ εἶναι· εἰ δ' ἀνάγκη εἶναι ἢ μὴ εἶναι, οὐκ ἔσται δυνατὸν ἄμφω. λείπεται τοίνυν τὸ οὐκ ἀναγκαῖον μὴ εἶναι ἀκολουθεῖν τῷ δυνατὸν εἶναι. τοῦτο γὰρ ἀληθὲς καὶ κατὰ τοῦ ἀναγκαῖον εἶναι. καὶ γὰρ αὕτη γίνεται ἀντίφασις τῇ ἑπομένῃ τῷ οὐ δυνατὸν εἶναι· ἐκείνῳ γὰρ ἀκολουθεῖ τὸ ἀδύνατον εἶναι καὶ ἀναγκαῖον μὴ εἶναι, οὗ ἡ ἀπόφασις τὸ οὐκ ἀναγκαῖον μὴ εἶναι. ἀκολουθοῦσί τε ἄρα καὶ αὗται αἱ ἀντιφάσεις κατὰ τὸν εἰρημένον τρόπον, καὶ οὐδὲν ἀδύνατον συμβαίνει τιθεμένων οὕτως.

Ἀπορήσειε δ' ἄν τις εἰ τῷ ἀναγκαῖον εἶναι τὸ

Or is it the fact that one cannot arrange in the foregoing manner contradictories predicating necessity? For that which must be also may be. For if not, the negative follows, since one or the other *must* follow. And so, if a thing is not possible, then must it needs be impossible. Hence we pronounce it impossible for that which must needs be to be. But that statement, of course, is absurd. Upon 'may be,' however, 'not impossible' follows in logical sequence, 'not necessary' upon 'not impossible,' and things that must needs be need not be—which statement, again, is absurd. 'It is necessary,' again, 'that it should be' cannot be inferred from 'it may be,' nor yet can the negative statement, 'it is necessary that it should not be.' I mean that 'it may be' implies a bilateral potentiality. Should one of the two propositions just mentioned, however, be true, there will then not be both the alternatives. The thing that may be yet may not be. But if we suppose for the moment it either must be or must not be, we rule one alternative out, and 'no need is there that it should not be' (which equally holds of what must be) must follow, therefore, from 'it may be.' We note, too, that this proposition negates that which follows on 'it cannot be,' since 'it is impossible' follows in logical sequence 'it cannot be,' just as there follows, in turn, 'it is necessary that it should not be,' and this proposition the one that we mentioned itself contradicts. So we see that in this case as well contradictories follow contradictories after the manner we mentioned, and, being arranged in that manner, they lead to no logical absurdities.

One may at this point raise the question, whether upon 'it is necessary' 'it may be' will logically

22 b
30 δυνατὸν εἶναι ἕπεται. εἴ τε γὰρ μὴ ἕπεται, ἡ
ἀντίφασις ἀκολουθήσει, τὸ μὴ δυνατὸν εἶναι· καὶ
εἴ τις ταύτην μὴ φήσειεν εἶναι ἀντίφασιν, ἀνάγκη
λέγειν τὸ δυνατὸν μὴ εἶναι· ἅπερ ἄμφω ψευδῆ
κατὰ τοῦ ἀναγκαίου εἶναι. ἀλλὰ μὴν πάλιν τὸ
αὐτὸ εἶναι δοκεῖ δυνατὸν τέμνεσθαι καὶ μὴ τέμνε-
35 σθαι καὶ εἶναι καὶ μὴ εἶναι, ὥστε ἔσται τὸ ἀναγ-
καῖον εἶναι ἐνδεχόμενον μὴ εἶναι· τοῦτο δὲ ψεῦδος.
φανερὸν δὴ ὅτι οὐ πᾶν τὸ δυνατὸν ἢ εἶναι ἢ βαδί-
ζειν καὶ τὰ ἀντικείμενα δύναται, ἀλλ' ἔστιν ἐφ'
ὧν οὐκ ἀληθές, πρῶτον μὲν ἐπὶ τῶν μὴ κατὰ
λόγον δυνατῶν, οἷον τὸ πῦρ θερμαντικὸν καὶ ἔχει
23 a δύναμιν ἄλογον. αἱ μὲν οὖν μετὰ λόγου δυνάμεις
αἱ αὐταὶ πλειόνων καὶ τῶν ἐναντίων, αἱ δ' ἄλογοι
οὐ πᾶσαι, ἀλλ' ὥσπερ εἴρηται, τὸ πῦρ οὐ δυνατὸν
θερμαίνειν καὶ μή, οὐδ' ὅσα ἄλλα ἐνεργεῖ ἀεί.
ἔνια μέντοι δύναται καὶ τῶν κατὰ τὰς ἀλόγους
δυνάμεις ἅμα τὰ ἀντικείμενα δέξασθαι. ἀλλὰ
5 τοῦτο μὲν τούτου χάριν εἴρηται, ὅτι οὐ πᾶσα
δύναμις τῶν ἀντικειμένων, οὐδ' ὅσαι λέγονται
κατὰ τὸ αὐτὸ εἶδος.

Ἔνιαι δὲ δυνάμεις ὁμώνυμοί εἰσιν. τὸ γὰρ
δυνατὸν οὐχ ἁπλῶς λέγεται, ἀλλὰ τὸ μὲν ὅτι ἀλη-
θὲς ὡς ἐνεργείᾳ ὄν, οἷον δυνατὸν βαδίζειν ὅτι
10 βαδίζει, καὶ ὅλως δυνατὸν εἶναι ὅτι ἤδη ἔστι κατ'
ἐνέργειαν ὃ λέγεται εἶναι δυνατόν, τὸ δὲ ὅτι ἐνερ-
γήσειεν ἄν, οἷον δυνατὸν εἶναι βαδίζειν ὅτι βαδί-
σειεν ἄν. καὶ αὕτη μὲν ἐπὶ τοῖς κινητοῖς ἐστι

follow. If not, must the contradictory, ' it cannot be,' logically follow or, supposing you say that this statement is not the correct contradictory, ' it may not be ' logically follows. But both propositions are false as applied to what is of necessity. It seems the accepted opinion that things that may be or be cut may, *per contra*, not be or be cut. And we should in that case be concluding that that which must be may not be, which, it goes without saying, is false. It is clear that not everything capable of being or walking possesses the opposite potentiality. Cases there are to the contrary. First, there are those things which have a non-rational potentiality. Among such, for instance, is fire, which is capable of giving out heat—a non-rational potentiality. Rational potentialities issue in more than one way or in contrary results or directions. Not so all irrational ones. That is, fire, to repeat what we said, cannot both give and not give out heat, nor can anything else always actual have any such potentiality. Some irrational potentialities, however, allow of such issues. So much, then, by way of explaining that, even where ' potentiality ' is quite unambiguously used, not every potentiality admits of such opposite issues.

But sometimes the term is ambiguous. ' Possible ' itself is ambiguous. It is used, on the one hand, of facts and of things that are actualized ; it is ' possible ' for someone to walk, inasmuch as he actually walks, and in general we call a thing ' possible,' since it is now realized. On the other hand, ' possible ' is used of a thing that *might be* realized ; it is ' possible ' for someone to walk, since in certain conditions he would. It is only to that which can move that this

μόνοις ἡ δύναμις, ἐκείνη δὲ καὶ ἐπὶ τοῖς ἀκινήτοις. ἄμφω δὲ ἀληθὲς εἰπεῖν τὸ μὴ ἀδύνατον εἶναι βαδίζειν ἢ εἶναι, καὶ τὸ βαδίζον ἤδη καὶ ἐνεργοῦν καὶ τὸ βαδιστικόν. τὸ μὲν οὖν οὕτω δυνατὸν οὐκ ἀληθὲς κατὰ τοῦ ἀναγκαίου ἁπλῶς εἰπεῖν, θάτερον δὲ ἀληθές. ὥστε ἐπεὶ τῷ ἐν μέρει τὸ καθόλου ἕπεται, τῷ ἐξ ἀνάγκης ὄντι ἕπεται τὸ δύνασθαι εἶναι, οὐ μέντοι πᾶν. καὶ ἔστι δὴ ἀρχὴ ἴσως τὸ ἀναγκαῖον καὶ μὴ ἀναγκαῖον πάντων ἢ εἶναι ἢ μὴ εἶναι, καὶ τἆλλα ὡς τούτοις ἀκολουθοῦντα ἐπισκοπεῖν δεῖ.

Φανερὸν δὴ ἐκ τῶν εἰρημένων ὅτι τὸ ἐξ ἀνάγκης ὂν κατ᾽ ἐνέργειάν ἐστιν, ὥστε εἰ πρότερα τὰ ἀΐδια, καὶ ἡ ἐνέργεια δυνάμεως προτέρα. καὶ τὰ μὲν ἄνευ δυνάμεως ἐνέργειαί εἰσιν, οἷον αἱ πρῶται οὐσίαι, τὰ δὲ μετὰ δυνάμεως, ἃ τῇ μὲν φύσει πρότερα τῷ δὲ χρόνῳ ὕστερα, τὰ δὲ οὐδέποτε ἐνέργειαί εἰσιν ἀλλὰ δυνάμεις μόνον.

XIV. Πότερον δὲ ἐναντία ἐστὶν ἡ κατάφασις τῇ ἀποφάσει ἢ ἡ κατάφασις τῇ καταφάσει, καὶ ὁ λόγος τῷ λόγῳ ὁ λέγων ὅτι πᾶς ἄνθρωπος δίκαιος τῷ οὐδεὶς ἄνθρωπος δίκαιος, ἢ τὸ πᾶς

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[a] God and the intelligences moving the celestial or heavenly bodies. The argument implies that the necessary is also eternal. 'The main proof,' says Dr. Ross, 'of the priority of actuality is the following:—What is external is prior in nature to what is perishable; and nothing is eternal by virtue of potentiality. For that which has the potentiality of being has also the potentiality of not-being, while the eternal is that which from its very nature cannot fail to be. In a sense, therefore, all the primordial entities in the universe are free from potentiality. God is in the fullest sense actual, since He is always what He is at any time, and has no element of unrealized potentiality' (*Aristotle*, p. 177).

kind of capacity belongs, while the former may also belong to such things as have no power of motion. Both of that which is walking and actual and of that which is capable of walking but does not now actually walk, it holds good that it is not impossible that it should walk (or should be). Now, this latter potentiality we cannot affirm of the necessary in its unqualified sense ; but the other we can so affirm. In conclusion, then, as the universal must follow upon the particular, so will the possible follow on that which exists of necessity, although not in all of its senses. Of being, not-being, indeed, may necessity, I think, and its absence be properly called the first principles, so that all else must be viewed as but following or consequent on them.

It is evident from the foregoing that the necessary is also the actual. And the actual is prior to the potential, inasmuch as the eternal is prior. There are, first of all, those actualities entirely without possibility, such as the primary substances.[a] Then there is that class of things which are actual and also potential : actuality is prior to possibility with these in the order of nature, although it is not prior in time.[b] There are finally those things also that remain but the barest possibilities and never become actualities.[c]

XIV. Here arises a doubt as to whether an affirmative statement is contrary to a negative statement or contrary to a second affirmation. Has the proposition ' every man is just ' for its contrary ' no man is

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[b] Generated and perishable substances in the sublunary world.

[c] Such as the largest number, the least magnitude and so on. These are never realized, though conceivable.

ἄνθρωπος δίκαιος τῷ πᾶς ἄνθρωπος ἄδικος, οἷον ἔστι Καλλίας δίκαιος—οὐκ ἔστι Καλλίας δίκαιος—Καλλίας ἄδικός ἐστι· ποτέρα δὴ ἐναντία τούτων; εἰ γὰρ τὰ μὲν ἐν τῇ φωνῇ ἀκολουθεῖ τοῖς ἐν τῇ διανοίᾳ, ἐκεῖ δὲ ἐναντία δόξα ἡ τοῦ ἐναντίου, οἷον ὅτι πᾶς ἄνθρωπος δίκαιος τῇ πᾶς ἄνθρωπος ἄδικος, καὶ ἐπὶ τῶν ἐν τῇ φωνῇ καταφάσεων ἀνάγκη ὁμοίως ἔχειν. εἰ δὲ μὴ ἐκεῖ ἡ τοῦ ἐναντίου δόξα ἐναντία ἐστίν, οὐδὲ ἡ κατάφασις τῇ καταφάσει ἔσται ἐναντία, ἀλλ' ἡ εἰρημένη ἀπόφασις. ὥστε σκεπτέον ποία δόξα ἀληθὴς ψευδεῖ δόξῃ ἐναντία, πότερον ἡ τῆς ἀποφάσεως ἢ ἡ τὸ ἐναντίον εἶναι δοξάζουσα. λέγω δὲ ὧδε. ἔστι τις δόξα ἀληθὴς τοῦ ἀγαθοῦ ὅτι ἀγαθόν, ἄλλη δὲ ὅτι οὐκ ἀγαθὸν ψευδής, ἑτέρα δὲ ὅτι κακόν. ποτέρα δὴ τούτων ἐναντία τῇ ἀληθεῖ; καὶ εἰ ἔστι μία, καθ' ὁποτέραν ἡ ἐναντία;

Τὸ μὲν δὴ τούτῳ οἴεσθαι τὰς ἐναντίας δόξας ὡρίσθαι, τῷ τῶν ἐναντίων εἶναι, ψεῦδος· τοῦ γὰρ ἀγαθοῦ ὅτι ἀγαθὸν καὶ τοῦ κακοῦ ὅτι κακὸν ἡ αὐτὴ ἴσως καὶ ἀληθὴς ἔσται, εἴτε πλείους εἴτε μία ἐστίν. ἐναντία δὲ ταῦτα. ἀλλ' οὐ τῷ ἐναντίων εἶναι ἐναντία, ἀλλὰ μᾶλλον τῷ ἐναντίως.

Εἰ δὴ ἔστι μὲν τοῦ ἀγαθοῦ ὅτι ἐστὶν ἀγαθὸν

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[a] Grote observes upon this that some of Aristotle's observations 'respecting the place and functions of the negative particle (οὐ), must be understood with reference to the variable order of words in a Greek or Latin sentence; for instance, the distinction between *Kallias non est iustus* and *Kallias est non iustus* does not suggest itself to one speaking English or French' (*Aristotle*, p. 137). But possibly this particular chapter is not by Aristotle himself.

just'? Or is 'every man is unjust' the contrary? 'Callias is just,' 'is not just,' 'is unjust' illustrate what I mean.[a] Which of these propositions are contraries? Supposing that the verbal proposition corresponds with the intellectual judgement, and, further, that that judgement is contrary to a judgement asserting the contrary, as judging that every man is just is to judging every man is unjust, then the same thing assuredly holds of our verbal propositions as well. On the other hand, if we suppose that the judgement asserting the contrary is not, in the mind of the speaker, the contrary one to another, no longer will one affirmation be contrary unto another. The negation will be the true contrary. Which of the true judgements, then, is the contrary one to the false? Is it that which denies the false judgement? Or that which pronounces the contrary? Take, for example, three judgements concerning a thing that is good—a true judgement or that 'it is good,' a false judgement or 'it is not good,' and a third, quite distinct, 'it is bad.' Of the last two which constitutes really the contrary one to the true? Or supposing them one and the same, then which verbal expression is the contrary?

To fancy that contrary judgements are those that have contrary subjects is to take an erroneous view. For the judgement that a good thing is good and the judgement that a bad thing is bad may be possibly one and the same; one or more, they are both of them true. Yet the subjects are contrary here. But what constitutes judgements as contrary is having two contrary senses, not having two contrary subjects.

Suppose that we have two opinions regarding a thing that is good, one opining that that thing is

23 b δόξα, ἄλλη δ' ὅτι οὐκ ἀγαθόν, ἔστι δὲ ἄλλο τι ὃ
οὐχ ὑπάρχει οὐδ' οἷόν τε ὑπάρξαι, τῶν μὲν δὴ
10 ἄλλων οὐδεμίαν θετέον, οὔτε ὅσαι ὑπάρχειν τὸ μὴ
ὑπάρχον δοξάζουσιν οὔθ' ὅσαι μὴ ὑπάρχειν τὸ
ὑπάρχον (ἄπειροι γὰρ ἀμφότεραι, καὶ ὅσαι ὑπάρχειν
δοξάζουσι τὸ μὴ ὑπάρχον καὶ ὅσαι μὴ
ὑπάρχειν τὸ ὑπάρχον), ἀλλ' ἐν ὅσαις ἐστὶν ἡ
ἀπάτη. αὗται δέ εἰσιν ἐξ ὧν αἱ γενέσεις. ἐκ τῶν
ἀντικειμένων δὲ αἱ γενέσεις, ὥστε καὶ αἱ ἀπάται.

15 Εἰ οὖν τὸ ἀγαθὸν καὶ ἀγαθὸν καὶ οὐ κακόν ἐστι,
καὶ τὸ μὲν καθ' ἑαυτὸ τὸ δὲ κατὰ συμβεβηκός
(συμβέβηκε γὰρ αὐτῷ οὐ κακῷ εἶναι), μᾶλλον δὲ
ἑκάστου ἀληθὴς ἡ καθ' ἑαυτό, καὶ ψευδής, εἴπερ
καὶ ἀληθής. ἡ μὲν οὖν ὅτι οὐκ ἀγαθὸν τὸ ἀγαθὸν
τοῦ καθ' ἑαυτὸ ὑπάρχοντος ψευδής, ἡ δὲ τοῦ ὅτι
20 κακὸν τοῦ κατὰ συμβεβηκός. ὥστε μᾶλλον ἂν
εἴη ψευδὴς τοῦ ἀγαθοῦ ἡ τῆς ἀποφάσεως ἢ ἡ τοῦ
ἐναντίου δόξα. διέψευσται δὲ μάλιστα περὶ ἕκαστον
ὁ τὴν ἐναντίαν ἔχων δόξαν· τὰ γὰρ ἐναντία
τῶν πλεῖστον διαφερόντων περὶ τὸ αὐτό. εἰ οὖν
ἐναντία μὲν τούτων ἡ ἑτέρα, ἐναντιωτέρα δὲ ἡ
25 τῆς ἀντιφάσεως, δῆλον ὅτι αὕτη ἂν εἴη ἐναντία.
ἡ δὲ τοῦ ὅτι κακὸν τὸ ἀγαθὸν συμπεπλεγμένη

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[a] In order to make this point clear, Aristotle, it seems, should have added 'whereas there can be but one contrary.'

good and the other one that it is not, and suppose there exist other qualities such as are neither inherent nor could be inherent in good, no opinion, notwithstanding, must be taken for the contrary one to the true that opines that some quality inheres, though it does not inhere, in the good or opines that it does not inhere, though it does so inhere, in the good, inasmuch as no limit of range is imposed on these types of opinion.[a] We shall rather call contrary to the true ones those judgements, in which there is error. And these have to do with generation. Generation means passing or transition from one of two extremes to the other: hence error is such a transition.

What is good, then, is good and not bad. The one quality belongs to it essentially, the other by accident only. For by accident is it not bad. But supposing that judgement the truest that deals with a thing's actual essence, that false one is really most false, that in like manner deals with its essence. A false judgement, dealing with essence, is 'that which is good is not good.' 'It is bad,' though a false judgement also, concerns what is accidental only. So the judgement denying its goodness is falser than that predicating some other and contrary quality. And then most completely deceived is the man who on this or that point entertains an opinion or judgement which is contrary to that which is true. For contraries belong to those things that within the same class differ most. Supposing, then, that one of two judgements is contrary to that which is true but that that which is contradictory is even more contrary still, then the latter must be the real contrary. To judge that a good thing is bad is, moreover, a com-

23 b ἐστί· καὶ γὰρ ὅτι οὐκ ἀγαθὸν ἀνάγκη ἴσως ὑπολαμβάνειν τὸν αὐτόν.

Ἔτι δέ, εἰ καὶ ἐπὶ τῶν ἄλλων ὁμοίως δεῖ ἔχειν, καὶ ταύτῃ ἂν δόξειε καλῶς εἰρῆσθαι· ἢ γὰρ πανταχοῦ τὸ τῆς ἀντιφάσεως ἢ οὐδαμοῦ. ὅσοις δὲ μή ἐστιν ἐναντία, περὶ τούτων ἔστι μὲν ψευδὴς ἡ τῇ ἀληθεῖ ἀντικειμένη, οἷον ὁ τὸν ἄνθρωπον οὐκ ἄνθρωπον οἰόμενος διέψευσται. εἰ οὖν αὗται ἐναντίαι, καὶ αἱ ἄλλαι αἱ τῆς ἀντιφάσεως.

Ἔτι ὁμοίως ἔχει ἡ τοῦ ἀγαθοῦ ὅτι ἀγαθὸν καὶ ἡ τοῦ μὴ ἀγαθοῦ ὅτι οὐκ ἀγαθόν, καὶ πρὸς ταύταις ἡ τοῦ ἀγαθοῦ ὅτι οὐκ ἀγαθὸν καὶ ἡ τοῦ μὴ ἀγαθοῦ ὅτι ἀγαθόν. τῇ οὖν τοῦ μὴ ἀγαθοῦ ὅτι οὐκ ἀγαθὸν ἀληθεῖ οὔσῃ δόξῃ τίς ἂν εἴη ἡ ἐναντία; οὐ γὰρ δὴ ἡ λέγουσα ὅτι κακόν· ἅμα γὰρ ἄν ποτε εἴη ἀληθής, οὐδέποτε δὲ ἀληθὴς ἀληθεῖ ἐναντία· ἔστι γάρ τι μὴ ἀγαθὸν κακόν, ὥστε ἐνδέχεται ἅμα ἀληθεῖς εἶναι. οὐδ' αὖ ἡ ὅτι οὐ κακόν· ἀληθὴς γὰρ καὶ αὕτη. ἅμα γὰρ καὶ ταῦτα ἂν εἴη. λείπεται οὖν τῇ τοῦ μὴ ἀγαθοῦ ὅτι οὐκ ἀγαθὸν ἐναντία 24 a ἡ τοῦ μὴ ἀγαθοῦ ὅτι ἀγαθόν· ψευδὴς γὰρ αὕτη. ὥστε καὶ ἡ τοῦ ἀγαθοῦ ὅτι οὐκ ἀγαθὸν τῇ τοῦ ἀγαθοῦ ὅτι ἀγαθόν.

Φανερὸν δὲ ὅτι οὐδὲν διοίσει οὐδ' ἂν καθόλου τιθῶμεν τὴν κατάφασιν· ἡ γὰρ καθόλου ἀπόφασις ἐναντία ἔσται, οἷον τῇ δόξῃ τῇ δοξαζούσῃ ὅτι πᾶν ὃ ἂν ᾖ ἀγαθὸν ἀγαθόν ἐστιν ἡ ὅτι οὐδὲν τῶν ἀγαθῶν

posite judgement. For the man who thus judges, I think, must as certainly judge it not good.

Then again, the contradictory judgement is the contrary always or never. And if this holds good in all others, so must it in this case as well, and the view that we took was correct. In the case of things having no contraries we hold that that judgement is false which denies what the true one asserts. Thus a man is, for instance, deceived who supposes a man not a man. If the contraries here are the negatives, so, we conclude, are they always.

Then, that what is not good is not good is a similar or parallel judgement to one that a good thing is good, and that that which is good is not good is a parallel judgement to judging that that which is not good is good. What is contrary, then, to the true one that what is not good is not good ? Not, at any rate, that it is bad ; that might well at the same time be true, and true judgements can never be contrary. Some things that are not good are bad, so that both may together be true. Nor is judging it not bad the contrary, seeing that, too, may be true, since both attributes might be compresent. And so in the case of the judgement that what is not good is not good we are driven at last to conclude that the contrary is that it is good. For that judgement, of course, is a false one. Again, in a similar manner of the judgement that a good thing is good the true contrary is that it is not.

To make the affirmation universal will evidently not alter matters. The universal negative judgement will then be the obvious contrary. Suppose, for example, a man judges everything good to be good : then the contrary of this is his judging that nothing

24 a ἀγαθόν. ἡ γὰρ τοῦ ἀγαθοῦ ὅτι ἀγαθόν, εἰ καθόλου
τὸ ἀγαθόν, ἡ αὐτή ἐστι τῇ ὅτι ὃ ἂν ᾖ ἀγαθὸν
δοξαζούσῃ ὅτι ἀγαθόν· τοῦτο δὲ οὐδὲν διαφέρει
τοῦ ὅτι πᾶν ὃ ἂν ᾖ ἀγαθὸν ἀγαθόν ἐστιν. ὁμοίως
24 b δὲ καὶ ἐπὶ τοῦ μὴ ἀγαθοῦ.

Ὥστε εἴπερ ἐπὶ δόξης οὕτως ἔχει, εἰσὶ δὲ αἱ ἐν
τῇ φωνῇ καταφάσεις καὶ ἀποφάσεις σύμβολα τῶν
ἐν τῇ ψυχῇ, δῆλον ὅτι καὶ καταφάσει ἐναντία
μὲν ἀπόφασις ἡ περὶ τοῦ αὐτοῦ καθόλου, οἷον τῇ
ὅτι πᾶν ἀγαθὸν ἀγαθὸν ἢ ὅτι πᾶς ἄνθρωπος
5 ἀγαθὸς ἡ ὅτι οὐδὲν ἢ οὐδείς, ἀντιφατικῶς δὲ ὅτι
ἢ οὐ πᾶν ἢ οὐ πᾶς. φανερὸν δὲ ὅτι καὶ ἀληθῆ
ἀληθεῖ οὐκ ἐνδέχεται ἐναντίαν εἶναι οὔτε δόξαν
οὔτε ἀντίφασιν.[1] ἐναντίαι μὲν γὰρ αἱ περὶ τὰ
ἀντικείμενα, περὶ ταῦτα δὲ ἐνδέχεται ἀληθεύειν
τὸν αὐτόν· ἅμα δὲ οὐκ ἐνδέχεται τὰ ἐναντία
ὑπάρχειν τῷ αὐτῷ.

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[1] ἀπόφασιν B.

of that kind is good. For the judging what is good to be good, if the subject be taken universally, amounts to a judgement pronouncing whatever is good to be good, and the latter in turn to a judgement pronouncing good everything good. And the same is the case with the not good.

If this is the case with our judgements and verbal affirmations and denials are symbols of those mental judgements, it is clear the universal denial, when the subject is one and the same, is the positive statement's true contrary. For instance, propositions affirming every good, every man to be good have for contraries propositions affirming no man, nothing good to be good. Contradictories, however, have for subjects 'not every man,' 'not every good.' It is manifest, too, that true judgements and true propositions can never be contrary one to another. While two propositions that are true can together be truly asserted, two contrary propositions must predicate contrary qualities, and these in the selfsame subject can never together inhere.

THE PRIOR ANALYTICS

INTRODUCTION

I. THE DEVELOPMENT OF ARISTOTLE'S LOGIC

THE invention of the syllogism, or rather the systematic treatment of the laws of inference, was perhaps Aristotle's greatest and most original achievement. It stands to reason that his approach to logical studies must have been through the Dialectic of the Academy ; but although we can see something of the practical application of Plato's theories in such dialogues as the *Theaetetus*, *Parmenides*, *Sophist* and *Politicus*, there is little ground for supposing that they were ever fully developed on the formal side. Indeed our evidence points the other way. When Aristotle is consciously building upon Plato's foundations, or upon those of any other philosophical school, he is accustomed to point out and account for the mistakes of his predecessors ; but in the *Analytics* the only overt reference to Plato (46 a 31) concerns the practice of definition by dichotomy (as exemplified in the last two dialogues mentioned above), and his description of it as " a kind of weak syllogism " seems to imply that it was Plato's nearest approach in this direction. It is moreover intrinsically probable that the systematic treatment of the inferential process should be attributed to Aristotle's own remarkable powers of analysis.

The theory of syllogism, as we find it expressed in the *Prior Analytics*, is clearly the result of long study and experiment. Attempts have been made in recent years by two German scholars, F. Solmsen (*Die Entwicklung der aristotelischen Logik und Rhetorik*, conveniently summarized by Professor J. L. Stocks in *C.Q.*, 1933, pp. 115-124) and P. Gohlke (*Die Entstehung der aristotelischen Logik*) to trace the development of the theory. Solmsen arranges the main logical works in the following order : (1) *Topics* I-VII ; (2) *Posterior Analytics* I ; (3) *Topics* VIII and IX (*De Sophisticis Elenchis*) ; (4) *Posterior Analytics* II ; (5) *Prior Analytics.* Dr Gohlke on the other hand holds that the received order of the two *Analytics* is correct, and that *Topics* VIII and IX presuppose the *Analytics.* I do not find his arguments entirely convincing. Certainty about such a point is perhaps unattainable, but I am strongly inclined towards the view that the *Prior Analytics* contains at least some of Aristotle's maturest logical thought.

Of course the problem is complicated by the fact that the logical works as we possess them are almost certainly compilations from notes or rough drafts for Aristotle's discourses. The material is not always well arranged (*e.g.* chs. xv-xxii of *An. Pr.* II would come more naturally in the *Topics*, and there is no reason to suppose that the present arrangement has any chronological significance. It is moreover highly probable that corrections and afterthoughts have been inserted in the text without complete assimilation ; and that many of the minor inconsistencies are due to this procedure. Dr Gohlke's attempt to identify these later passages, and so to distinguish the different strata of thought, is attractively worked out; but his results must as yet be regarded as conjectural.

II. The Theory of Syllogism in the Prior Analytics

Summary of the contents

The first book of the *Prior Analytics* falls into two halves. The first 26 chapters are devoted to the formal statement of the theory: the enunciation and demonstration of the laws of syllogistic reasoning, and the analysis of the various forms which the syllogism can take. The last 20 chapters contain instructions for the construction of syllogisms, either in general or for special purposes, and a number of practical directions and warnings to students.

Aristotle begins naturally by defining his subject and explaining his terminology. It is worth noting in this connexion that the use of the words ὅρος (bound or limit), ἄκρον (extreme) and μέσον (middle) to describe the terms, and of διάστημα (interval) as an alternative to πρότασις or premiss, suggests that Aristotle was accustomed to employ some form of blackboard diagram, as it were, for the purpose of illustration. A premiss was probably represented by a line joining the letters chosen to stand for the terms. How quality and quantity were indicated can only be conjectured. These distinctions are stated in ch. ii. The quantitative analysis of judgements was almost certainly Aristotle's discovery; there is no trace of it in Plato, and it is certainly not explicit in the *Categories*; it is first formulated in ch. vii of the *De Interpretatione*. The point is, of course, vital to the theory of syllogism (*cf. An. Pr.* I. xxiv and xxxiii). The rest of the chapter gives the rules for conversion of assertoric premisses. Ch. iii. deals with the conversion of apodeictic and problematic premisses, which are now mentioned for the first time. It is extremely probable that this " chapter " did not form part of the original course on the syllogism, but was " added " after Aristotle had outlined his theory of modality.

Chs. iv-vi describe the valid moods in the three figures. It should be observed that Aristotle did not recognize the fourth or " Galenian " figure (at any rate as a separate type) ; in which he was probably right. Ch. vii sums up the findings of the three previous chapters, and shows how all syllogisms can be reduced to the universal syllogisms of the first figure.

Chs. viii-xxii are devoted to the analysis of modal syllogisms. This part of Aristotle's theory is full of difficulties, and is discussed in a separate section (pp. 189-193).

In ch. xxiii Aristotle returns to his main theory, and distinguishing logical proofs as either ostensive or hypothetical, proceeds to examine the mechanism of syllogism. He first explains the function of the middle term, and shows that the three figures exhaust the possible ways of relating the middle to the extreme terms. Hence all ostensive syllogisms are effected by these three figures. But hypothetical syllogisms also depend upon ostensive proof ; and therefore all syllogisms are effected by the three figures and are ultimately reducible to the universal syllogisms of the first figure.

Ch. xxiv points out that in every syllogism (1) one premiss at least must be affirmative, and (2) one premiss at least must be universal: *i.e.* the middle term must be distributed.

Ch. xxv lays down the materials necessary for drawing a syllogistic inference, viz. two premisses containing three terms. This doctrine is of course implicit from the beginning, but it is first clearly stated here. Ch. xxvi sums up the facilities for constructive and destructive proof.

The second section of Book I begins with an explanation, in chs. xxvii-xxx, of the method of finding premisses by selecting consequents and antecedents of the major and minor terms; and how the method is to be applied in the case of different propositions. Ch. xxxi criticizes the Platonic method of definition by dichotomy. Ch. xxxii shows how to reduce arguments to syllogistic form in the several figures.

In chs. xxxiii-xliii we find a series of warnings against errors in selecting or enunciating terms and premisses. Ch. xliv shows how far hypothetical proofs admit of reduction, and ch. xlv treats of the resolution of one figure into another. Finally ch. xlvi explains the true form of contradictory statements.

Book II discusses various aspects and properties of the syllogism and similar methods of reasoning. The first chapter explains that more than one conclusion can be drawn from the same premisses, and the next three show how true conclusions can be drawn from false premisses. Chs. v-vii describe circular or reciprocal proof, chs. viii-x deal with the conversion of syllogisms, and chs. xi-xiii with reduction *ad impossibile* in the three figures. Ch. xiv compares the procedure of ostensive proof with that of reduction *ad impossibile*, and ch. xv considers the question of drawing conclusions from contrary and contradictory premisses. Chs. xvi and xvii are devoted to the fallacies of *petitio principii* and false cause, while in ch. xviii Aristotle points out that falsity in an argument depends upon the first false statement which it contains. Chs. xix and xx treat of the syllogism in argument and refutation. Ch. xxi shows the possibility of being mistaken in a particular judgement even when one has knowledge of the universal truths upon which that judgement, when properly conceived, depends. Ch. xxii deals with the convertibility of terms, and with the comparison of desirable and undesirable objects. The last five chapters treat of argument by induction, by example, by reduction, by objection, and by probabilities or " signs."

Aristotle's view of the syllogism

The formulation of a logical system which in spite of modifications—some of which are questionable improvements—remains the basis of all subsequent logic, was so great a feat that criticism seems almost ungenerous, especially when we consider that here as elsewhere we are compelled to judge Aristotle, as it were, at second hand. If he himself had edited the logical works for publication, he would doubtless have removed many of the imperfections and inconsistencies which can be observed in our text. There are, however, certain defects which call for notice.

A purely formal logic which is detached from reality is a worthless instrument indeed ; and since Aristotle's logic is avowedly the instrument of the mind in search of truth, we do not look in it for any such detachment. But there is reason to suppose that he expected more correspondence between the conclusion of a syllogism and objective reality than is compatible with the conception of the syllogism as a process of thought. At any rate in 34 b 14 ff. he apparently denies the validity of a syllogism because the conclusion which follows from a pair of premisses stating a narrowly restricted relation proves less than could be inferred from complete knowledge of the facts. The premisses are :

Everything which moves may (at a given time) be an animal.

All men may move.

The conclusion, says Aristotle, is apodeictic, not problematic, because man is necessarily an animal ; and since an apodeictic conclusion cannot be drawn from problematic premisses, Aristotle decides that the syllogism is invalid. The same arbitrary objection occurs in lines 32-37. These are certainly extreme examples ; they come in a passage which is so hastily expressed that it appears to be an afterthought designed to meet certain practical difficulties ; and I have observed no exact parallel to them. But the general practice of rebutting the validity of a syllogism by selecting concrete examples (however natural and unobjectionable it may be in itself) suggests a tendency to look for objective truth in the conclusion. The careful discussion of the possibility of drawing a true conclusion from false premisses (*An. Pr.* II. ii-iv) may perhaps point in the same direction.

Elsewhere, too, Aristotle seems to emphasize the apodeictic function of the syllogism by regarding the conclusion as something distinct from the premisses rather than as potentially latent in them. The very definition of syllogism in 24 b 18 stresses the former aspect; and throughout the early chapters of *An. Pr.* I, when he is establishing the valid moods of the three figures, he proceeds by taking different pairs of premisses and then considering what conclusion if any can be drawn from them. Of course this is quite legitimate, but it is one-sided; and it comes almost as a surprise when in ch. xiii *ad fin.* he reverses the process and analyses the conclusion into its premisses. Moreover, he is led to change his normal practice here by a special motive: the desire to show that a problematic conclusion can be drawn either from two problematic premisses or from one problematic and one assertoric premiss. Here again the section in question has the air of an afterthought; at least it is curious that the point was not raised before. It is a similar failure to regard the syllogism as a coherent whole that leads to the errors which I have noted on 34 b 2 and 7. It is only fair, however, to add that in *An. Pr.* II. xxi, especially 67 a 33-b 11, the true relation of conclusion to premisses is made quite explicit.

The Modal Analysis and its defects

The whole section (*An. Pr.* I. viii-xxii) on modal syllogisms shows signs of superficial treatment. It seems clear to me that Aristotle either found this part of his theory unsatisfactory and left it incomplete (we know from Alexander and various scholia that Theophrastus and Eudemus lost no time in modifying it); or that he merely sketched it in outline and gave the task of working it out in detail to his pupils. The latter hypothesis is attractive, since it would account better for the lack of proper synthesis, but in default of linguistic or stylistic evidence it can only be entertained as a remote possibility.

In the first place Aristotle never makes clear what he means by the apodeictic, assertoric and problematic relations. It is practically certain that he considers the distinction to be grounded upon something objective, yet he uses the same terms " animal " and " man " in 25 a 25, 26 a 8, b 7, and 28 a 32 to illustrate an assertoric, and in 30 a 24, b 33, 31 b 41, 32 b 6 etc. to illustrate an apodeictic relation. One might suppose the analysis of premisses as apodeictic, assertoric and problematic to refer to the predication of the definitory genus or differentia, of the property, and of the accident ; but the only evidence for this correspondence seems to be in 43 b 6 ff. The association of the accident with problematic predication might perhaps also be inferred from a comparison of *Topics* 102 b 6 with *An. Pr.* 32 b 10. But it is a serious defect that so important a point should receive no explicit treatment, and the omission in itself justifies us in supposing that the modal system was never brought to perfection.

The whole question of the problematic relation is very difficult, and we can hardly acquit Aristotle of entertaining inconsistent views about it. Three conceptions of the " possible " appear in the *Analytics*. (1) That which is not impossible. This of course excludes neither the actual nor the necessary (25 a 38). (2) That which is neither impossible nor necessary, *i.e.* that which is neither necessarily so nor necessarily not so. This still does not exclude the assertoric relation (*cf.* 34 a 36-38), though it is doubtless generally intended to do so. It is the " definition " to which Aristotle frequently refers (33 b 23, 30 etc.) ; and which underlies the main development of the modal analysis. But we also find (24 b 14, 32 b 4) the possible described as (3) that which, as contrasted with the purely contingent, obtains generally but not necessarily, *i.e.* the probable. It has been supposed that this is merely a particular case of (2) ; that indeed it is the normal case of that type, since the purely contingent is outside the proper range of logical science. Aristotle's language (32 b 13-22) certainly suggests this at first sight. But on this view the " problematic conversion " which holds good of (2) is hard to justify. If " all A may be B " is possible *qua* probable, " no A may be B " is possible only *qua* improbable ; the two judgements differ fundamentally in implication, and the substitution of one for the other cannot but affect the inference to be drawn. Indeed in the " earlier " passage (which is probably a later addition) Aristotle states definitely that a universal negative premiss of type (3) is not convertible, although a similar premiss of type (2) follows the general rule. Dr Gohlke thinks (pp. 73 ff.) that Aristotle was driven to restrict the sense of the problematic premiss so as to preclude conversion of the universal negative by the awkward results which would otherwise have followed in the second figure. This seems extremely probable. At least it seems obvious that the non-convertibility of such premisses ought to have been demonstrated in ch. iii, if the doctrine formed part of the original system.

An even greater mystery surrounds Aristotle's attitude towards the convertibility of the particular negative problematic premiss. The question is discussed at length by both Maier and Becker, but it can only be briefly considered here. The main point is this : why is it that Aristotle, after expressly admitting its convertibility (25 b 13 ; Maier appears to overlook this statement—at least I cannot find that he refers to it), apparently never avails himself of it? Becker (pp. 60-63) shows that while in certain of Maier's examples there is a definite reason for not employing this form of conversion, in others no such reason can be quoted, so that the failure to employ it appears to be a genuine oversight. Gohlke dismisses the difficulty by supposing 25 b 13 to be a late addition. I cannot quite follow his theory of the development of Aristotle's idea of possibility.

In point of fact the problematic premiss of type (2) will not fit consistently into Aristotle's system. One of its most awkward features is that it has no single contradictory, and so resists the process of proof *per impossibile* ; and so in ch. xv we find that it gives place to type (1). It is moreover almost valueless for purposes of argument. Why then did Aristotle adopt it as the normal type ? Presumably because he felt that to call anything "possible" which was in reality necessary was an intolerable looseness of terminology. At the same time a desire for symmetrical tripartition induced him to frame a system in which apodeictic and problematic should show a perfectly antithetical correspondence about the assertoric mean. The attempt was bound to fail, because objectively there is no mean between the necessary and the not-necessary ; the two conceptions together are exhaustive.

It follows that any satisfactory threefold system must depend upon a subjective distinction of modality. A judgement is apodeictic if it rests on demonstrable grounds, assertoric if the fact is apprehended but the grounds are unknown, and problematic if the fact is regarded as capable of realization. But even so the dividing line between the first two is hard to draw; and the universal problematic judgement is more naturally expressed as a particular assertoric. When we say "all men may be white," we presumably mean "some men are white, some are not-white; but we know no reason why the not-white men should necessarily exist."

Thus the modal analysis, which depends for its value upon genuine distinctions, becomes practically useless. It was continued, with modifications, by Aristotle's immediate successors, but being little more than a formal exercise it fell more and more into neglect.

III. Manuscripts and Other Sources

The chief manuscripts for this part of the *Organon* are the following:

A	Urbinas 35	saec. ix-x ineunt.
B	Marcianus 201	an. 955
C	Coislinianus 333	saec. xi
d	Laurentianus 72.5	,, x ?
n	Ambrosianus L. 93	saec. x-xi
f	Marcianus App. IV. 5	an. 1320
u	Basileensis F. 11.21	saec. xi-xii
m	Ambrosianus Q. 87	saec. xv
a	Angelicus C. 3.13	?
c	Vaticanus 1024	"satis uetustus"
i	Laurentianus 72.15	saec. xiv

Of these the first two are by far the best. Bekker preferred A; Waitz showed that B is generally more accurate, and this view is now generally accepted. C is considerably inferior to either, but it sometimes preserves the true reading. Of the others only d and n have much independent value; the rest are sometimes of use to decide a doubtful point. Light is also thrown on the text by the commentaries of Alexander, Philoponus, Themistius and Pacius, and the Latin versions of Boethius and the *uetus interpres Latinus.*

The present translation aims at preserving something of the effect of the original without too great a sacrifice of English idiom. I have tried to escape the anachronism of interpreting Aristotle's meaning too much in the terms of contemporary logic, of which indeed I do not profess to have an exhaustive knowledge; I have therefore avoided technicalities except such as are sanctioned by tradition, and have attempted to examine the arguments, where comment seemed necessary, in the light of what I conceive to be common sense.

Apart from the ancient commentators, the most helpful authorities which I have used are Waitz's admirable edition of the *Organon* and Maier's treatise (see Bibliography). I have often consulted the Oxford Translation; and the new French version by M. Tricot appeared just in time for me to refer to it on certain points. I am especially obliged to Dr. A Becker for sending me his most instructive monograph on the modal syllogisms; to my friend and former colleague Dr. B. M. Laing for discussing various points with me; and to Professor T. M. Knox of St. Andrews University for much excellent advice and criticism.

I much regret that sheer lack of time has prevented me from doing greater justice to a subject which has received little systematic treatment in this country for many years. It became apparent, however, that the appearance of this volume, already long overdue, would be indefinitely delayed if I attempted to examine all the points which interested me, and I felt that I could not tax the patience of the editors by keeping it back any longer. I hope that even in its present form it calls attention to some points which have not been noticed before.

SELECT BIBLIOGRAPHY

I append a short list of the principal editions, translations and works of reference which are likely to be most useful to the student of the *Analytics*.

EDITIONS

Since the publication of Bekker's text (Berlin 1831, Oxford 1837) there has been only one critical edition of the *Organon*, that of T. Waitz (Leipzig 1844–1846).

TRANSLATIONS

T. Taylor, London 1812; O. F. Owen (Bohn Library), London 1853; Oxford Translation (*Prior Analytics* by A. J. Jenkinson, *Posterior Analytics* by G. R. G. Mure), Oxford 1906. *Posterior Analytics* only: E. Poste, Oxford 1850; E. S. Bouchier, Oxford 1901. In French: J. B.-Saint-Hilaire, Paris 1837; J. Tricot, Paris 1936. In German: J. H. von Kirchmann, Heidelberg 1877; *Lehre vom Schluss* (*Prior Analytics*) and *Lehre vom Beweis* (*Posterior Analytics*), E. Rolfes, Leipzig 1922.

CRITICISM AND INTERPRETATION

H. Maier, *Die Syllogistik des Aristoteles*, Tübingen, 1900; O. Hamelin, *Le Système d'Aristote*, Paris 1920; F. Solmsen, *Die Entwicklung der aristotelischen Logik und Rhetorik*, 1929; J. L. Stocks, "The Composition of Aristotle's Logical Works," *Classical Quarterly*, 1933, pp. 115–124; A. Becker, *Die aristotelische Theorie der Möglichkeitsschlusse*, Berlin 1922; P. Gohlke, *Die Entstehung der aristotelischen Logik*, Berlin 1936.

THE TRADITIONAL MOOD-NAMES

For the benefit of those who are forgetful or who are not familiar with the mnemonic mood-names for the various syllogisms, I give a list of them with a brief explanation:

Fig. 1 (direct) Barbara, Celarent, Darii, Ferio.
(indirect) Baralipton, Celantes, Dabitis, Fapesmo, Frisesomorum.
Fig. 2 Cesare, Camestres, Festino, Baroco.
Fig. 3 Darapti, Felapton, Disamis, Datisi, Bocardo, Ferison.
Fig. 4 Bramantip, Camenes, Dimaris, Fesapo, Fresison.

The first three vowels of each word show the quality and quantity of the premisses and conclusion, A standing for the universal and I for the particular affirmative, E for the universal and O for the particular negative. The consonants indicate the rules for reduction. The initial letters correspond in every case to those of the mood-names of the direct syllogisms of the first figure. The letters which immediately follow the significant vowels give the necessary procedure.

m (muta) means that the premisses must be transposed.

s (simpliciter) means that the premiss denoted by the preceding vowel must be converted simply.

p (per accidens) means that the premiss must be converted by limitation.

c (conversio) means that for the premiss the contradictory of the conclusion must be substituted.

ΑΝΑΛΥΤΙΚΩΝ ΠΡΟΤΕΡΩΝ

Α

I. Πρῶτον εἰπεῖν περὶ τί καὶ τίνος ἐστὶν ἡ σκέψις, ὅτι περὶ ἀπόδειξιν καὶ ἐπιστήμης ἀποδεικτικῆς· εἶτα διορίσαι τί ἐστι πρότασις καὶ τί ὅρος καὶ τί συλλογισμός, καὶ ποῖος τέλειος καὶ ποῖος ἀτελής, μετὰ δὲ ταῦτα τί τὸ ἐν ὅλῳ εἶναι ἢ μὴ εἶναι τόδε τῷδε, καὶ τί λέγομεν τὸ κατὰ παντὸς ἢ μηδενὸς κατηγορεῖσθαι.

Πρότασις μὲν οὖν ἐστι λόγος καταφατικὸς ἢ ἀποφατικὸς τινὸς κατά τινος· οὗτος δὲ ἢ καθόλου ἢ ἐν μέρει ἢ ἀδιόριστος. λέγω δὲ καθόλου μὲν τὸ παντὶ ἢ μηδενὶ ὑπάρχειν, ἐν μέρει δὲ τὸ τινὶ ἢ μὴ τινὶ ἢ μὴ παντὶ ὑπάρχειν, ἀδιόριστον δὲ τὸ ὑπάρχειν ἢ μὴ ὑπάρχειν ἄνευ τοῦ καθόλου ἢ κατὰ μέρος, οἷον τὸ τῶν ἐναντίων εἶναι τὴν αὐτὴν ἐπιστήμην ἢ τὸ τὴν ἡδονὴν μὴ εἶναι ἀγαθόν.

Διαφέρει δὲ ἡ ἀποδεικτικὴ πρότασις τῆς διαλεκτικῆς, ὅτι ἡ μὲν ἀποδεικτικὴ λῆψις θατέρου μορίου τῆς ἀντιφάσεώς ἐστιν (οὐ γὰρ ἐρωτᾷ ἀλλὰ

PRIOR ANALYTICS

BOOK I

Book I. The Laws of Syllogism.

Scope of the treatise.

I. Our first duty is to state the scope of our inquiry, and to what science it pertains: that it is concerned with demonstration, and pertains to a demonstrative science. Next we must define the meaning of 'premiss' and 'term' and 'syllogism,' and distinguish between a perfect and an imperfect syllogism; and after this we must explain in what sense one term is said to be or not to be 'wholly contained' in another; and what we mean by 'predicated of all' or 'of none.'

Preliminary definition of the premiss, and its types.

A premiss is an affirmative or negative statement of something about some subject. This statement may be universal or particular or indefinite. By universal I mean a statement which applies to all, or to none, of the subject; by particular, a statement which applies to some of the subject, or does not apply to some, or does not apply to all; by indefinite, a statement which applies or does not apply without reference to universality or particularity, *e.g.*, 'contraries are studied by the same science' or 'pleasure is not good.'

Demonstrative, dialectical and syllogistic premisses.

The premiss of demonstration differs from the premiss of dialectic in that the former is the assumption of one member of a pair of contradictory statements (since the demonstrator does not ask a question

24 a
25 λαμβάνει ὁ ἀποδεικνύων), ἡ δὲ διαλεκτικὴ ἐρώτησις
ἀντιφάσεώς ἐστιν. οὐδὲν δὲ διοίσει πρὸς τὸ γενέσθαι
τὸν ἑκατέρου συλλογισμόν· καὶ γὰρ ὁ ἀποδεικνύων
καὶ ὁ ἐρωτῶν συλλογίζεται λαβών τι
κατά τινος ὑπάρχειν ἢ μὴ ὑπάρχειν. ὥστε ἔσται
συλλογιστικὴ μὲν πρότασις ἁπλῶς κατάφασις ἢ
30 ἀπόφασίς τινος κατά τινος τὸν εἰρημένον τρόπον,
ἀποδεικτικὴ δὲ ἐὰν ἀληθὴς ᾖ καὶ διὰ τῶν ἐξ ἀρχῆς
24 b 10 ὑποθέσεων[a] εἰλημμένη, διαλεκτικὴ δὲ πυνθανομένῳ
μὲν ἐρώτησις ἀντιφάσεως, συλλογιζομένῳ δὲ λῆψις
τοῦ φαινομένου καὶ ἐνδόξου, καθάπερ ἐν τοῖς
Τοπικοῖς εἴρηται.[b]

Τί μὲν οὖν ἐστὶ πρότασις, καὶ τί διαφέρει συλλογιστικὴ
καὶ ἀποδεικτικὴ καὶ διαλεκτική, δι'
15 ἀκριβείας μὲν ἐν τοῖς ἑπομένοις ῥηθήσεται, πρὸς
δὲ τὴν παροῦσαν χρείαν ἱκανῶς ἡμῖν διωρίσθω
τὰ νῦν.

Ὅρον δὲ καλῶ εἰς ὃν διαλύεται ἡ πρότασις, οἷον
τό τε κατηγορούμενον καὶ τὸ καθ' οὗ κατηγορεῖται,
ἢ προστιθεμένου ἢ διαιρουμένου τοῦ εἶναι καὶ μὴ
εἶναι.

Συλλογισμὸς δέ ἐστι λόγος ἐν ᾧ τεθέντων τινῶν
20 ἕτερόν τι τῶν κειμένων ἐξ ἀνάγκης συμβαίνει τῷ
ταῦτα εἶναι. λέγω δὲ τῷ ταῦτα εἶναι τὸ διὰ ταῦτα

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[a] *i.e.* that which is either self-evident or accepted as true for the immediate inquiry. *Cf. An. Post.* I. ix.; *Topics*, 100 a 27.

[b] A dialectical premiss may be either the alternative chosen by an actual opponent in answer to a question of the form 'Is X Y or not Y?' or the assumption of one alternative by a person reasoning independently.

but makes an assumption), whereas the latter is an answer to the question which of two contradictory statements is to be accepted. This difference, however, will not affect the fact that in either case a syllogism results ; for both the demonstrator and the interrogator draw a syllogistic conclusion by first assuming that some predicate applies or does not apply to some subject. Thus a syllogistic premiss will be simply the affirmation or negation of some predicate of some subject, in the way already described ; the premiss will be demonstrative if it is true and based upon fundamental postulates [a] ; while the dialectical premiss will be, for the interrogator, an answer to the question which of two contradictory statements is to be accepted, and for the logical reasoner,[b] an assumption of what is apparently true and generally accepted,—as has been stated in the *Topics*.[c]

What is meant by a premiss, and what difference there is between syllogistic, demonstrative and dialectical premisses, will be explained with exactness later [d] ; but for our immediate requirements the present definition may be taken as sufficient.

Term defined.

By a term I mean that into which the premiss can be analysed, viz., the predicate and the subject, with the addition or removal of the verb to be or not to be.

Syllogism defined.

A syllogism is a form of words in which, when certain assumptions are made, something other than what has been assumed necessarily follows from the fact that the assumptions are such. By ' from the fact that they are such ' I mean that it is because

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[c] 104 a 8 ; *cf.* also 100 a 29.

[d] Demonstrative in *An. Post.* I. vi.-ix. ; dialectical in *Topics*.

24 b συμβαίνειν, τὸ δὲ διὰ ταῦτα συμβαίνειν τὸ μηδενὸς
ἔξωθεν ὅρου προσδεῖν πρὸς τὸ γενέσθαι τὸ ἀναγκαῖον.

Τέλειον μὲν οὖν καλῶ συλλογισμὸν τὸν μηδενὸς
ἄλλου προσδεόμενον παρὰ τὰ εἰλημμένα πρὸς τὸ
25 φανῆναι τὸ ἀναγκαῖον, ἀτελῆ δὲ τὸν προσδεόμενον
ἢ ἑνὸς ἢ πλειόνων, ἃ ἔστι μὲν ἀναγκαῖα διὰ τῶν
ὑποκειμένων ὅρων, οὐ μὴν εἴληπται διὰ προτάσεων.

Τὸ δὲ ἐν ὅλῳ εἶναι ἕτερον ἑτέρῳ καὶ τὸ κατὰ
παντὸς κατηγορεῖσθαι θατέρου θάτερον ταὐτόν
ἐστιν. λέγομεν δὲ τὸ κατὰ παντὸς κατηγορεῖσθαι
30 ὅταν μηδὲν ᾖ λαβεῖν τῶν τοῦ ὑποκειμένου καθ'
οὗ θάτερον οὐ λεχθήσεται· καὶ τὸ κατὰ μηδενὸς
ὡσαύτως.

25 a II. Ἐπεὶ δὲ πᾶσα πρότασίς ἐστιν ἢ τοῦ ὑπάρχειν
ἢ τοῦ ἐξ ἀνάγκης ὑπάρχειν ἢ τοῦ ἐνδέχεσθαι
ὑπάρχειν, τούτων δὲ αἱ μὲν καταφατικαὶ αἱ δὲ
ἀποφατικαὶ καθ' ἑκάστην πρόσρησιν, πάλιν δὲ τῶν
5 καταφατικῶν καὶ ἀποφατικῶν αἱ μὲν καθόλου αἱ
δὲ ἐν μέρει αἱ δὲ ἀδιόριστοι, τὴν μὲν ἐν τῷ ὑπάρχειν
καθόλου στερητικὴν ἀνάγκη τοῖς ὅροις ἀντιστρέφειν,
οἷον εἰ μηδεμία ἡδονὴ ἀγαθόν, οὐδ'
ἀγαθὸν οὐδὲν ἔσται ἡδονή· τὴν δὲ κατηγορικὴν ἀντιστρέφειν
μὲν ἀναγκαῖον, οὐ μὴν καθόλου ἀλλ'
ἐν μέρει, οἷον εἰ πᾶσα ἡδονὴ ἀγαθόν, καὶ ἀγαθόν
10 τι εἶναι ἡδονήν· τῶν δὲ ἐν μέρει τὴν μὲν καταφατικὴν
ἀντιστρέφειν ἀνάγκη κατὰ μέρος (εἰ γὰρ
ἡδονή τις ἀγαθόν, καὶ ἀγαθόν τι ἔσται ἡδονή), τὴν

of them that the conclusion follows; and by this I mean that there is no need of any further term to render the conclusion necessary.

Perfect and imperfect syllogisms.

I call a syllogism perfect if it requires nothing, apart from what is comprised in it, to make the necessary conclusion apparent; imperfect if it requires one or more propositions which, although they necessarily follow from the terms which have been laid down, are not comprised in the premisses.

'To be wholly contained in' and 'to be predicated of all.'

For one term to be wholly contained in another is the same as for the latter to be predicated of all of the former. We say that one term is predicated of all of another when no examples of the subject can be found of which the other term cannot be asserted. In the same way we say that one term is predicated of none of another.

Premisses are (1) assertoric, apodeictic or problematic; (2) affirmative or negative; (3) universal, particular or indefinite. Rules for the conversion of (*a*) assertoric,

II. Now every premiss is of the form that some attribute applies, or necessarily applies, or may possibly apply, to some subject.[a] These three types are divided into affirmative and negative in accordance with each mode of attribution; and again of affirmative and negative premisses some are universal, others particular and others indefinite. In universal statement the negative premiss is necessarily convertible in its terms: *e.g.*, if no pleasure is good, neither will anything good be pleasure; but the affirmative, though necessarily convertible, is so not as a universal but as a particular statement: *e.g.*, if every pleasure is good, some good must also be pleasure. In particular statements the affirmative premiss must be convertible as particular, for if some pleasure is good, some good will also be pleasure; but the

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[a] This modal analysis is rejected by many modern logicians. *Cf.* Introd. pp. 189-193.

25 a δὲ στερητικὴν οὐκ ἀναγκαῖον· οὐ γὰρ εἰ ἄνθρωπος μὴ ὑπάρχει τινὶ ζῴῳ, καὶ ζῷον οὐχ ὑπάρχει τινὶ ἀνθρώπῳ.

Πρῶτον μὲν οὖν ἔστω στερητικὴ καθόλου ἡ ΑΒ πρότασις. εἰ οὖν μηδενὶ τῶν[1] Β τὸ Α ὑπάρχει, οὐδὲ τῶν Α οὐδενὶ ὑπάρξει τὸ Β. εἰ γάρ τινι, οἷον τῷ Γ, οὐκ ἀληθὲς ἔσται τὸ μηδενὶ τῶν Β τὸ Α ὑπάρχειν· τὸ γὰρ Γ τῶν Β τί ἐστιν. εἰ δὲ παντὶ τὸ Α τῷ Β, καὶ τὸ Β τινὶ τῷ Α ὑπάρχει. εἰ γὰρ μηδενί, οὐδὲ τὸ Α οὐδενὶ τῷ Β ὑπάρξει· ἀλλ' ὑπέκειτο παντὶ ὑπάρχειν. ὁμοίως δὲ καὶ εἰ κατὰ μέρος ἐστὶν ἡ πρότασις. εἰ γὰρ τὸ Α τινὶ τῶν Β, καὶ τὸ Β τινὶ τῶν Α ἀνάγκη ὑπάρχειν· εἰ γὰρ μηδενί, οὐδὲ τὸ Α οὐδενὶ τῶν Β.[2] εἰ δέ γε τὸ Α τινὶ τῶν Β μὴ ὑπάρχει, οὐκ ἀνάγκη καὶ τὸ Β τινὶ τῷ Α μὴ ὑπάρχειν, οἷον εἰ τὸ μὲν Β ἐστὶ ζῷον τὸ δὲ Α ἄνθρωπος· ἄνθρωπος μὲν γὰρ οὐ παντὶ ζῴῳ, ζῷον δὲ παντὶ ἀνθρώπῳ ὑπάρχει.

III. Τὸν αὐτὸν δὲ τρόπον ἕξει καὶ ἐπὶ τῶν ἀναγκαίων προτάσεων· ἡ μὲν γὰρ καθόλου στερητικὴ καθόλου ἀντιστρέφει, τῶν δὲ καταφατικῶν ἑκατέρα κατὰ μέρος. εἰ μὲν γὰρ ἀνάγκη τὸ Α τῷ Β μηδενὶ ὑπάρχειν, ἀνάγκη καὶ τὸ Β τῷ Α μηδενὶ ὑπάρχειν· εἰ γὰρ τινὶ ἐνδέχεται, καὶ τὸ Α τῷ Β τινὶ ἐνδέχοιτο ἄν. εἰ δὲ ἐξ ἀνάγκης τὸ Α παντὶ ἢ τινὶ τῷ Β ὑπάρχει, καὶ τὸ Β τινὶ τῷ Α ἀνάγκη ὑπάρχειν· εἰ γὰρ μὴ ἀνάγκη, οὐδ' ἂν τὸ Α τινὶ τῶν Β ἐξ ἀνάγκης ὑπάρχοι. τὸ δ' ἐν μέρει στερητικὸν οὐκ ἀντιστρέφει διὰ τὴν αὐτὴν αἰτίαν δι' ἣν καὶ πρότερον ἔφαμεν.

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[1] τῷ C^1, Bekker.

[2] τῶν Β ὑπάρξει codd. dett.

negative is not necessarily convertible ; for it does not follow that if ' man ' does not apply to some animal, neither will ' animal ' apply to some man.

First, then, let us take a negative universal premiss[a] having the terms A and B. Then if A applies to no B,[b] neither will B apply to any A ; for if it applies to some, *e.g.* C, it will not be true that A applies to no B, because C is a B. If on the other hand A applies to all B, B also applies to some A ; for if it applies to none, neither will A apply to any B ; but *ex hypothesi* it applies to all B. Similarly too if the premiss is particular. For if A applies to some B, B must also apply to some A ; since if it applies to none, neither will A apply to any B. But if A does not apply to some B, it does not necessarily follow that B does not apply to some A ; *e.g.*, if B is ' animal ' and A ' man ' ; for ' man ' does not apply to every animal, but ' animal ' applies to every man.

(*b*) apodeictic,

III. The same principle will also obtain in the case of apodeictic premisses. The universal negative converts universally, whereas each of the affirmatives converts as a particular premiss. For if A necessarily applies to no B, B also necessarily applies to no A ; for if it may apply to some, A might also apply to some B. But if A necessarily applies to all or some of B, B must also apply to some A ; for if this is not necessarily so, neither will A necessarily apply to some B. The particular negative statement is not convertible, for the same reason which we have already stated.[c]

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[a] *Sc.* of the assertoric type.

[b] It must be noted that in the Aristotelian formula the predicate regularly comes before the subject. The modern equivalent is ' No B is A.'

[c] Ch. ii. *ad fin.*

25 a Ἐπὶ δὲ τῶν ἐνδεχομένων, ἐπειδὴ πολλαχῶς
λέγεται τὸ ἐνδέχεσθαι (καὶ γὰρ τὸ ἀναγκαῖον
καὶ τὸ μὴ ἀναγκαῖον καὶ τὸ δυνατὸν ἐνδέχεσθαι
40 λέγομεν), ἐν μὲν τοῖς καταφατικοῖς ὁμοίως ἕξει
κατὰ τὴν ἀντιστροφὴν ἐν ἅπασιν· εἰ γὰρ τὸ Α
25 b παντὶ ἢ τινὶ τῷ Β ἐνδέχεται, καὶ τὸ Β τινὶ τῷ Α
ἐνδέχοιτο ἄν (εἰ γὰρ μηδενί, οὐδ' ἂν τὸ Α οὐδενὶ
τῷ Β· δέδεικται γὰρ τοῦτο πρότερον)· ἐν δὲ τοῖς
ἀποφατικοῖς οὐχ ὡσαύτως, ἀλλ' ὅσα μὲν ἐνδέχεσθαι
5 λέγεται ἢ τῷ ἐξ ἀνάγκης ὑπάρχειν[1] ἢ τῷ μὴ
ἐξ ἀνάγκης ὑπάρχειν, ὁμοίως· οἷον εἴ τις φαίη τὸν
ἄνθρωπον ἐνδέχεσθαι μὴ εἶναι ἵππον ἢ τὸ λευκὸν
μηδενὶ ἱματίῳ ὑπάρχειν· τούτων γὰρ τὸ μὲν ἐξ
ἀνάγκης οὐχ ὑπάρχει, τὸ δὲ οὐκ ἀνάγκη ὑπάρχειν,
καὶ ὁμοίως ἀντιστρέφει ἡ πρότασις· εἰ γὰρ ἐνδέχεται
10 μηδενὶ ἀνθρώπῳ ἵππον, καὶ ἄνθρωπον
ἐγχωρεῖ μηδενὶ ἵππῳ· καὶ εἰ τὸ λευκὸν ἐγχωρεῖ
μηδενὶ ἱματίῳ, καὶ τὸ ἱμάτιον ἐγχωρεῖ μηδενὶ
λευκῷ· εἰ γάρ τινι ἀνάγκη, καὶ τὸ λευκὸν ἱματίῳ
τινὶ ἔσται ἐξ ἀνάγκης· τοῦτο γὰρ δέδεικται πρότερον·
ὁμοίως δὲ καὶ ἐπὶ τῆς ἐν μέρει ἀποφατικῆς·
ὅσα δὲ τῷ ὡς ἐπὶ πολὺ καὶ τῷ πεφυκέναι λέγεται
15 ἐνδέχεσθαι, καθ' ὃν τρόπον διορίζομεν τὸ ἐνδεχόμενον,
οὐχ ὁμοίως ἕξει ἐν ταῖς στερητικαῖς ἀντιστροφαῖς,
ἀλλ' ἡ μὲν καθόλου στερητικὴ πρότασις

[1] ὑπάρχειν AB (μὴ supra lineam praefixo) Phil., Waitz: μὴ ὑπάρχειν recc.

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[a] This is obviously a loose application of the term, and one which Aristotle does not always admit; *cf.* 32 a 18-21 and *De Interp.* 22 a 16. For a discussion of his treatment of problematic syllogism see Introd. pp. 190-192.

(c) problematic premisses.

With regard to possible premisses, since the term 'possible' is used in several senses (for we call possible both that which is necessary [a] and that which is not necessary and that which is capable of being), in all affirmative statements conversion will take place under the same conditions as before. For if A may apply to all or some of B, B might also apply to some A; for if it could apply to none, neither could A apply to any B. This has been proved above.[b] But in negative statements the case is not the same. In all examples which are said to be possible in the sense that the statement is necessarily true, or is not necessarily true, the conditions are similar to those already stated; *e.g.*, if it were said to be possible that a man should not be a horse, or that 'white' should apply to no coat. For in the former example the predicate necessarily does not apply to the subject, and in the latter it does not necessarily apply; and the premiss converts like other negatives. For if it is possible for 'horse' to apply to no man, it is also possible for 'man' to apply to no horse; and if it is possible for 'white' to apply to no coat, it is also possible for 'coat' to apply to nothing white. For if it must apply to something that is white, 'white' will also necessarily apply to some coat; this has been proved above.[c] Similar conditions govern the conversion of particular negative premisses.

But in such premisses as are said to be possible in the sense that they are generally or naturally true (for we define the possible in this way), the conditions for the conversion of negatives will not be the same as before. The universal negative premiss does not

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[b] 25 a 18 ff.

[c] 25 a 32.

25 b
οὐκ ἀντιστρέφει, ἡ δὲ ἐν μέρει ἀντιστρέφει. τοῦτο
δὲ ἔσται φανερὸν ὅταν περὶ τοῦ ἐνδεχομένου
λέγωμεν.

Νῦν δὲ τοσοῦτον ἡμῖν ἔστω πρὸς τοῖς εἰρημένοις
20 δῆλον, ὅτι τὸ ἐνδέχεσθαι μηδενὶ ἢ τινὶ μὴ ὑπάρχειν
καταφατικὸν ἔχει τὸ σχῆμα· τὸ γὰρ ἐνδέχεται τῷ
ἔστιν ὁμοίως τάττεται, τὸ δὲ ἔστιν, οἷς ἂν προσκατηγορῆται,
κατάφασιν ἀεὶ ποιεῖ καὶ πάντως,
οἷον τὸ ἔστιν οὐκ ἀγαθόν ἢ ἔστιν οὐ λευκόν ἢ
ἁπλῶς τὸ ἔστιν οὐ τοῦτο. δειχθήσεται δὲ καὶ τοῦτο
25 διὰ τῶν ἑπομένων. κατὰ δὲ τὰς ἀντιστροφὰς
ὁμοίως ἕξουσι ταῖς ἄλλαις.

IV. Διωρισμένων δὲ τούτων λέγομεν ἤδη διὰ
τίνων καὶ πότε καὶ πῶς γίγνεται πᾶς συλλογισμός·
ὕστερον δὲ λεκτέον περὶ ἀποδείξεως.
πρότερον δὲ περὶ συλλογισμοῦ λεκτέον ἢ περὶ
ἀποδείξεως διὰ τὸ καθόλου μᾶλλον εἶναι τὸν
30 συλλογισμόν· ἡ μὲν γὰρ ἀπόδειξις συλλογισμός τις,
ὁ συλλογισμὸς δὲ οὐ πᾶς ἀπόδειξις.

Ὅταν οὖν ὅροι τρεῖς οὕτως ἔχωσι πρὸς ἀλλήλους
ὥστε τὸν ἔσχατον ἐν ὅλῳ εἶναι τῷ μέσῳ καὶ τὸν
μέσον ἐν ὅλῳ τῷ πρώτῳ ἢ εἶναι ἢ μὴ εἶναι,
35 ἀνάγκη τῶν ἄκρων εἶναι συλλογισμὸν τέλειον.
καλῶ δὲ μέσον μὲν ὃ καὶ αὐτὸ ἐν ἄλλῳ καὶ
ἄλλο ἐν τούτῳ ἐστίν, ὃ καὶ τῇ θέσει γίγνεται μέσον·
ἄκρα δὲ τὸ αὐτό τε ἐν ἄλλῳ ὂν καὶ ἐν ᾧ ἄλλο
ἐστίν. εἰ γὰρ τὸ Α κατὰ παντὸς τοῦ Β καὶ τὸ
Β κατὰ παντὸς τοῦ Γ, ἀνάγκη τὸ Α κατὰ παντὸς
τοῦ Γ κατηγορεῖσθαι· πρότερον γὰρ εἴρηται πῶς

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[a] Chs. xiii. ff.

[b] Ch. xlvi.

[c] In the *Posterior Analytics*.

[d] 24 b 28.

convert, whereas the particular negative does. This will become clear when we discuss the possible.[a]

For the present we may regard this much as clear, in addition to what we have already said : that the statement ' it is possible for A to apply to no B ' or ' not to apply to some B ' is affirmative in form ; for the expression ' is possible ' corresponds to ' is,' and the word ' is,' to whatever terms it is attached in predication, has always and without exception the effect of affirmation : *e.g.*, ' is not good ' or ' is not white ' or in general ' is not X.' This also will be proved later.[b] In respect of conversion these premisses will be governed by the same conditions as other affirmatives.

Figures and moods of syllogism.

IV. Having drawn these distinctions we can now state by what means, and when, and how every syllogism is effected. Afterwards we must deal with demonstration.[c] The reason why we must deal with the syllogism before we deal with demonstration is that the syllogism is more universal ; for demonstration is a kind of syllogism, but not every syllogism is a demonstration.

The First Figure.

When three terms are so related to one another that the last is wholly contained in the middle and the middle is wholly contained in or excluded from the first, the extremes must admit of perfect syllogism. By ' middle term ' I mean that which both is contained in another and contains another in itself, and which is the middle by its position also ; and by ' extremes ' (*a*) that which is contained in another, and (*b*) that in which another is contained. For if A is predicated of all B, and B of all C, A must necessarily be predicated of all C. We have already explained [d] what we mean by saying that one term

Middle term.

Extreme terms.
(1) Both premisses universal.
Barbara.

25 b
40 τὸ κατὰ παντὸς λέγομεν. ὁμοίως δὲ καὶ εἰ τὸ
26 a μὲν Α κατὰ μηδενὸς τοῦ Β τὸ δὲ Β κατὰ παντὸς
τοῦ Γ, ὅτι τὸ Α οὐδενὶ τῷ Γ ὑπάρξει.

Εἰ δὲ τὸ μὲν πρῶτον παντὶ τῷ μέσῳ ὑπάρχει, τὸ
δὲ μέσον μηδενὶ τῷ ἐσχάτῳ ὑπάρχει, οὐκ ἔσται
συλλογισμὸς τῶν ἄκρων· οὐδὲν γὰρ ἀναγκαῖον
5 συμβαίνει τῷ ταῦτα εἶναι· καὶ γὰρ παντὶ καὶ
μηδενὶ ἐνδέχεται τὸ πρῶτον τῷ ἐσχάτῳ ὑπάρχειν,
ὥστε οὔτε τὸ κατὰ μέρος οὔτε τὸ καθόλου
γίγνεται ἀναγκαῖον· μηδενὸς δὲ ὄντος ἀναγκαίου
διὰ τούτων οὐκ ἔσται συλλογισμός. ὅροι τοῦ
παντὶ ὑπάρχειν ζῷον—ἄνθρωπος—ἵππος, τοῦ μηδενὶ
ζῷον—ἄνθρωπος—λίθος.

10 Οὐδ' ὅταν μήτε τὸ πρῶτον τῷ μέσῳ μήτε τὸ
μέσον τῷ ἐσχάτῳ μηδενὶ ὑπάρχῃ, οὐδ' οὕτως ἔσται
συλλογισμός. ὅροι τοῦ ὑπάρχειν ἐπιστήμη—
γραμμή—ἰατρική, τοῦ μὴ ὑπάρχειν ἐπιστήμη—
γραμμή—μονάς.

Καθόλου μὲν οὖν ὄντων τῶν ὅρων δῆλον ἐν
τούτῳ τῷ σχήματι πότε ἔσται καὶ πότε οὐκ ἔσται
15 συλλογισμός, καὶ ὅτι ὄντος τε συλλογισμοῦ τοὺς
ὅρους ἀναγκαῖον ἔχειν ὡς εἴπομεν, ἄν θ' οὕτως
ἔχωσιν, ὅτι ἔσται συλλογισμός.

Εἰ δ' ὁ μὲν καθόλου τῶν ὅρων ὁ δ' ἐν μέρει
πρὸς τὸν ἕτερον, ὅταν μὲν τὸ καθόλου τεθῇ πρὸς
τὸ μεῖζον ἄκρον ἢ κατηγορικὸν ἢ στερητικόν,
τὸ δὲ ἐν μέρει πρὸς τὸ ἔλαττον κατηγορικόν,
20 ἀνάγκη συλλογισμὸν εἶναι τέλειον, ὅταν δὲ πρὸς
τὸ ἔλαττον ἢ καὶ ἄλλως πως ἔχωσιν οἱ ὅροι,

is predicated of all of another. Similarly too if A is predicated of none of B, and B of all of C, it follows that A will apply to no C. **Celarent.**

If, however, the first term applies to all the middle, and the middle to none of the last, the extremes cannot admit of syllogism; for no conclusion follows necessarily from the fact that they are such, since it is possible for the first term to apply either to all or to none of the last, and so neither a particular nor a universal conclusion necessarily follows; and if no necessary conclusion follows from the premisses there can be no syllogism. The positive relation of the extremes may be illustrated by the terms animal—man—horse; the negative relation by animal—man—stone. **AE-**

Again, when the first applies to none of the middle, and the middle to none of the last, here too there can be no syllogism. The positive relation of the extremes may be illustrated by the terms science—line—medicine; the negative relation by science—line—unit. **EE-**

Thus if the terms are in a universal relation it is clear, so far as this figure is concerned, when there will be a syllogism and when there will not. It is clear also that if there is a syllogism the terms must be related as we have said; and that if they are so related, there will be a syllogism.

(2) One universal and one particular premiss. If, however, one of the ⟨extreme⟩ terms is in a universal and the other in a particular relation to the remaining term, when the universal statement, whether affirmative or negative, refers to the major term, and the particular statement is affirmative and refers to the minor term, there must be a perfect syllogism; but when the universal statement refers to the minor term, or the terms are related in any

26 a ἀδύνατον. λέγω δὲ μεῖζον μὲν ἄκρον ἐν ᾧ τὸ
μέσον ἐστίν, ἔλαττον δὲ τὸ ὑπὸ τὸ μέσον ὄν.
ὑπαρχέτω γὰρ τὸ μὲν Α παντὶ τῷ Β, τὸ δὲ Β τινὶ
τῷ Γ. οὐκοῦν εἰ ἔστι παντὸς κατηγορεῖσθαι τὸ
25 ἐν ἀρχῇ λεχθέν, ἀνάγκη τὸ Α τινὶ τῷ Γ ὑπάρχειν.
καὶ εἰ τὸ μὲν Α μηδενὶ τῷ Β ὑπάρχει τὸ δὲ Β τινὶ
τῷ Γ, ἀνάγκη τὸ Α τινὶ τῷ Γ μὴ ὑπάρχειν· ὥρισται
γὰρ καὶ τὸ κατὰ μηδενὸς πῶς λέγομεν· ὥστε ἔσται
συλλογισμὸς τέλειος. ὁμοίως δὲ καὶ εἰ ἀδιόριστον
εἴη τὸ ΒΓ κατηγορικὸν ὄν· ὁ γὰρ αὐτὸς ἔσται συλ-
30 λογισμὸς ἀδιορίστου τε καὶ ἐν μέρει ληφθέντος.

Ἐὰν δὲ πρὸς τὸ ἔλαττον ἄκρον τὸ καθόλου τεθῇ
ἢ κατηγορικὸν ἢ στερητικόν, οὐκ ἔσται συλλο-
γισμός, οὔτε καταφατικοῦ οὔτε ἀποφατικοῦ τοῦ[1]
ἀδιορίστου ἢ κατὰ μέρος ὄντος, οἷον εἰ τὸ μὲν Α
τινὶ τῷ Β ὑπάρχει ἢ μὴ ὑπάρχει, τὸ δὲ Β παντὶ
35 τῷ Γ ὑπάρχει· ὅροι τοῦ ὑπάρχειν ἀγαθόν—ἕξις—
φρόνησις, τοῦ μὴ ὑπάρχειν ἀγαθόν—ἕξις—ἀμαθία.

Πάλιν εἰ τὸ μὲν Β μηδενὶ τῷ Γ, τὸ δὲ Α τινὶ
τῷ Β ὑπάρχει ἢ μὴ ὑπάρχει ἢ μὴ παντὶ ὑπάρχει,
οὐδ' οὕτως ἔσται συλλογισμός. ὅροι λευκόν—
ἵππος—κύκνος, λευκόν—ἵππος—κόραξ. οἱ αὐτοὶ
δὲ καὶ εἰ τὸ ΑΒ ἀδιόριστον.

26 b Οὐδ' ὅταν τὸ μὲν πρὸς τῷ μείζονι ἄκρῳ καθόλου
γένηται ἢ κατηγορικὸν ἢ στερητικόν, τὸ δὲ πρὸς
τῷ ἐλάττονι στερητικὸν κατὰ μέρος, οὐκ ἔσται συλ-

[1] τοῦ f, Waitz: οὔτε.

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[a] Aristotle's wording is a little unfortunate. He does not, of course, mean that the relation of the major to the middle or of the middle to the minor term is always that of genus to

Major and minor terms.

Darii.

Ferio.

other way, this is impossible. (By the major term I mean that in which the middle is contained, and by the minor that which falls under the middle term.[a]) For let A apply to all B, and B to some C. Then if 'to be predicated of all' means what we stated at the beginning,[b] A must apply to some C. And if A applies to no B, but B applies to some C, A must necessarily not apply to some C (we have also defined what we mean by 'to be predicated of none'[c]). Thus we shall have a perfect syllogism. Similarly too supposing the proposition BC to be indefinite, provided that it is affirmative; for we shall have the same syllogism whether BC is indefinite or particular.

IA-OA-

If, however, the universal statement, whether affirmative or negative, refers to the minor term, there will be no syllogism, whether the indefinite (or particular) statement is affirmative or negative; *e.g.*, if A applies or does not apply to some B, and B applies to all C. The positive relation of the extremes may be illustrated by the terms good—state—intelligence; the negative relation by good—state—ignorance.

IE-OE-

Again, if B applies to no C, and A applies to some, or does not apply to some or all of B; in this case too there will be no syllogism. We may take as terms white—horse—swan, white—horse—crow. The same terms will also serve if the proposition AB is indefinite.

Furthermore, when the statement relating to the major term is universal, whether affirmative or negative, and that relating to the minor is negative and particular, there will be no syllogism, whether the

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species, but merely that the predicate is naturally a more comprehensive notion than the subject.

[b] 24 b 28.

[c] 24 b 30.

26 b
λογισμὸς ἀδιορίστου τε καὶ ἐν μέρει ληφθέντος,
οἷον εἰ τὸ μὲν Α παντὶ τῷ Β ὑπάρχει, τὸ δὲ Β
5 τινὶ τῷ Γ μή, ἢ εἰ μὴ παντὶ ὑπάρχει· ᾧ γὰρ ἂν
τινι μὴ ὑπάρχῃ τὸ μέσον, τούτῳ καὶ παντὶ καὶ
οὐδενὶ ἀκολουθήσει τὸ πρῶτον. ὑποκείσθωσαν
γὰρ οἱ ὅροι ζῷον—ἄνθρωπος—λευκόν· εἶτα καὶ
ὧν μὴ κατηγορεῖται λευκῶν ὁ ἄνθρωπος εἰλήφθω
κύκνος καὶ χιών· οὐκοῦν τὸ ζῷον τοῦ μὲν παντὸς
10 κατηγορεῖται τοῦ δὲ οὐδενός, ὥστε οὐκ ἔσται
συλλογισμός. πάλιν τὸ μὲν Α μηδενὶ τῷ Β
ὑπαρχέτω, τὸ δὲ Β τινὶ τῷ Γ μὴ ὑπαρχέτω, καὶ
οἱ ὅροι ἔστωσαν ἄψυχον—ἄνθρωπος—λευκόν· εἶτα
εἰλήφθωσαν, ὧν μὴ κατηγορεῖται λευκῶν ὁ ἄνθρωπος, κύκνος καὶ χιών· τὸ γὰρ ἄψυχον τοῦ μὲν
παντὸς κατηγορεῖται τοῦ δὲ οὐδενός.

15 Ἔτι ἐπεὶ ἀδιόριστον τὸ τινὶ τῷ Γ τὸ Β μὴ
ὑπάρχειν, ἀληθεύεται δὲ καὶ εἰ μηδενὶ ὑπάρχει καὶ
εἰ μὴ παντὶ ὅτι τινὶ οὐχ ὑπάρχει, ληφθέντων δὲ
τοιούτων ὅρων ὥστε μηδενὶ ὑπάρχειν οὐ γίγνεται
συλλογισμός (τοῦτο γὰρ εἴρηται πρότερον), φανερὸν
οὖν ὅτι τῷ οὕτως ἔχειν τοὺς ὅρους οὐκ ἔσται
20 συλλογισμός· ἦν γὰρ ἂν καὶ ἐπὶ τούτων. ὁμοίως
δὲ δειχθήσεται καὶ εἰ τὸ καθόλου τεθείη στερητικόν.

Οὐδέ γ' ἐὰν ἄμφω τὰ διαστήματα κατὰ μέρος ᾖ
κατηγορικῶς ἢ στερητικῶς, ἢ τὸ μὲν κατηγορικῶς
τὸ δὲ στερητικῶς λέγηται, ἢ τὸ μὲν ἀδιόριστον
τὸ δὲ διωρισμένον, ἢ ἄμφω ἀδιόριστα, οὐκ ἔσται
25 συλλογισμὸς οὐδαμῶς. ὅροι δὲ κοινοὶ πάντων
ζῷον—λευκόν—ἵππος, ζῷον—λευκόν—λίθος.

Φανερὸν οὖν ἐκ τῶν εἰρημένων ὡς ἐὰν ᾖ συλ-

AO-

minor premiss is indefinite or particular; *e.g.*, if A applies to all B, and B does not apply to some or all of C; for where the middle term does not apply to some of the minor, the major term may be associated with all or with none of the minor. Let us assume the terms animal—man—white; next as examples of white things of which 'man' is not predicated let us take 'swan' and 'snow.' Then 'animal' is predicated of all the former, but of none of the latter. Thus there will be no syllogism. Again, let A apply to no B, and let C not apply to some B; let the terms be inanimate—man—white; next take as examples of white things of which 'man' is not predicated 'swan' and 'snow.' 'Inanimate' is predicated of all the latter, but of none of the former.

EO-

Further, since the statement 'B does not apply to some C' is indefinite, and the statement is true whether B applies to no C or does not apply to all C; and since when such terms are chosen that B applies to no C, we get no syllogism (this has been stated above[a]): it is obvious that with the terms in this relation there will be no syllogism; otherwise there would have been one with the terms which we selected. There will be a similar proof if the universal statement is taken as negative.

(3) Other combinations of premisses: II- OO- IO- OI-

Also, if both the attributive relations are particular, and both affirmative or both negative, or one affirmative and the other negative; or if one is indefinite and the other definite; or if both are indefinite: in no case will there be a syllogism. Terms applicable to all these cases are animal—white—horse or animal—white—stone.

It is evident, then, from what we have said, that

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[a] 26 a 2.

26 b
λογισμὸς ἐν τούτῳ τῷ σχήματι κατὰ μέρος, ὅτι
ἀνάγκη τοὺς ὅρους οὕτως ἔχειν ὡς εἴπομεν·
ἄλλως γὰρ ἐχόντων οὐδαμῶς γίγνεται. δῆλον δὲ
καὶ ὅτι πάντες οἱ ἐν αὐτῷ συλλογισμοὶ τέλειοί
30 εἰσι· πάντες γὰρ ἐπιτελοῦνται διὰ τῶν ἐξ ἀρχῆς
ληφθέντων· καὶ ὅτι πάντα τὰ προβλήματα δείκνυται
διὰ τούτου τοῦ σχήματος· καὶ γὰρ τὸ παντὶ καὶ
τὸ μηδενὶ καὶ τὸ τινὶ καὶ τὸ μὴ τινὶ ὑπάρχειν.
καλῶ δὲ τὸ τοιοῦτον σχῆμα πρῶτον.

V. Ὅταν δὲ τὸ αὐτὸ τῷ μὲν παντὶ τῷ δὲ
35 μηδενὶ ὑπάρχῃ, ἢ ἑκατέρῳ παντὶ ἢ μηδενί, τὸ μὲν
σχῆμα τὸ τοιοῦτον καλῶ δεύτερον, μέσον δὲ ἐν
αὐτῷ λέγω τὸ κατηγορούμενον ἀμφοῖν, ἄκρα δὲ
καθ' ὧν λέγεται τοῦτο, μεῖζον δὲ ἄκρον τὸ πρὸς
τῷ μέσῳ κείμενον, ἔλαττον δὲ τὸ πορρωτέρω τοῦ
μέσου. τίθεται δὲ τὸ μέσον ἔξω μὲν τῶν ἄκρων,
πρῶτον δὲ τῇ θέσει.

27 a Τέλειος μὲν οὖν οὐκ ἔσται συλλογισμὸς οὐδαμῶς
ἐν τούτῳ τῷ σχήματι, δυνατὸς δ' ἔσται καὶ καθόλου
καὶ μὴ καθόλου τῶν ὅρων ὄντων. καθόλου
μὲν οὖν ὄντων ἔσται συλλογισμὸς ὅταν τὸ μέσον
τῷ μὲν παντὶ τῷ δὲ μηδενὶ ὑπάρχῃ, ἂν πρὸς
5 ὁποτερῳοῦν ᾖ τὸ στερητικόν· ἄλλως δ' οὐδαμῶς.
κατηγορείσθω γὰρ τὸ Μ τοῦ μὲν Ν μηδενὸς τοῦ
δὲ Ξ παντός. ἐπεὶ οὖν ἀντιστρέφει τὸ στερητικόν,
οὐδενὶ τῷ Μ ὑπάρξει τὸ Ν· τὸ δέ γε Μ παντὶ τῷ
Ξ ὑπέκειτο· ὥστε τὸ Ν οὐδενὶ τῷ Ξ· τοῦτο γὰρ
δέδεικται πρότερον. πάλιν εἰ τὸ Μ τῷ μὲν Ν
10 παντὶ τῷ δὲ Ξ μηδενί, οὐδὲ τῷ[1] Ξ τὸ Ν οὐδενὶ
ὑπάρξει. εἰ γὰρ τὸ Μ οὐδενὶ τῷ Ξ, οὐδὲ τὸ Ξ

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[1] τῷ Ξ τὸ Ν A², Philoponus (?), Waitz: τὸ Ν τῷ Ξ miu, Trendelenburg: τὸ Ξ τῷ Ν BCdf.

if a syllogism in this figure has a particular conclusion, its terms must be related as we have described; for if they are related otherwise there can in no case be a syllogism. It is clear also that all syllogisms in this figure are perfect (since they are all completed by means of the original assumptions); and that all kinds of propositions can be proved by this figure; for it proves both universal and particular conclusions, whether affirmative or negative. I call this kind of figure the First.

Second Figure.

Position of the terms.

V. When the same term applies to all of one subject and to none of the other, or to all or none of both, I call this kind of figure the Second; and in it by the middle term I mean that which is predicated of both subjects; by the extreme terms, the subjects of which the middle is predicated; by the major term, that which comes next to the middle; and by the minor that which is more distant from it. The middle is placed outside the extreme terms, and is first by position.

(1) Both premisses universal.

Now there can in no case be a perfect syllogism in this figure; but there can be a valid[a] syllogism, whether the terms are universal or not. If they are universal, there will be a syllogism when the middle applies to all of one subject and to none of the other, whichever of the two subjects is negatived; but in no other case. *E.g.*, let M be predicated of no N, but of all O. Then since the negative premiss is convertible, N will apply to no M. But *ex hypothesi* M applies to all O. Therefore N applies to no O (this has been proved above[b]). Again, if M applies to all N but to no O, N will apply to no O. For if M applies

Cesare.

Camestres.

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[a] *i.e.* imperfect; 24 b 22 ff.
[b] In Celarent, 25 b 40.

27 a

οὐδενὶ τῷ Μ· τὸ δέ γε Μ παντὶ τῷ Ν ὑπῆρχεν· τὸ ἄρα Ξ οὐδενὶ τῷ Ν ὑπάρξει· γεγένηται γὰρ πάλιν τὸ πρῶτον σχῆμα. ἐπεὶ δὲ ἀντιστρέφει τὸ στερητικόν, οὐδὲ τὸ Ν οὐδενὶ τῷ Ξ ὑπάρξει, ὥστ' ἔσται ὁ αὐτὸς συλλογισμός. ἔστι δὲ δεικνύναι ταῦτα καὶ εἰς τὸ ἀδύνατον ἄγοντας.

Ὅτι μὲν οὖν γίγνεται συλλογισμὸς οὕτως ἐχόντων τῶν ὅρων, φανερόν, ἀλλ' οὐ τέλειος· οὐ γὰρ μόνον ἐκ τῶν ἐξ ἀρχῆς ἀλλὰ καὶ ἐξ ἄλλων ἐπιτελεῖται τὸ ἀναγκαῖον.

Ἐὰν δὲ τὸ Μ παντὸς τοῦ Ν καὶ τοῦ Ξ κατηγορῆται, οὐκ ἔσται συλλογισμός. ὅροι τοῦ ὑπάρχειν οὐσία—ζῷον—ἄνθρωπος, τοῦ μὴ ὑπάρχειν οὐσία—ζῷον—ἀριθμός· μέσον οὐσία. οὐδ' ὅταν μήτε τοῦ Ν μήτε τοῦ Ξ μηδενὸς κατηγορῆται τὸ Μ. ὅροι τοῦ ὑπάρχειν γραμμή—ζῷον—ἄνθρωπος, τοῦ μὴ ὑπάρχειν γραμμή—ζῷον—λίθος.

Φανερὸν οὖν ὅτι ἂν ᾖ συλλογισμὸς καθόλου τῶν ὅρων ὄντων, ἀνάγκη τοὺς ὅρους ἔχειν ὡς ἐν ἀρχῇ εἴπομεν· ἄλλως γὰρ ἐχόντων οὐ γίγνεται τὸ ἀναγκαῖον.

Ἐὰν δὲ πρὸς τὸν ἕτερον ᾖ καθόλου τὸ μέσον, ὅταν μὲν πρὸς τὸν μείζω γένηται καθόλου ἢ κατηγορικῶς ἢ στερητικῶς, πρὸς δὲ τὸν ἐλάττω κατὰ μέρος καὶ ἀντικειμένως τῷ καθόλου (λέγω δὲ τὸ

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[a] *Sc.* which proves the conclusion. Both Cesare and Camestres are proved by Celarent.

[b] By assuming in each case the contradictory of the conclusion, viz., that N applies to some O, and combining this with the major premiss. The resulting syllogisms (in Ferio

to no O, O will apply to no M. But *ex hypothesi* M applies to all N. Therefore O will apply to no N; for again we have the first figure. And since the negative statement is convertible, N will also apply to no O. Thus it will be the same syllogism as before.[a] It is also possible to prove these results by reduction *ad impossibile*.[b]

Thus it is evident that with the terms in this relation we get a syllogism, but not a perfect one; because the necessary conclusion is completed not only by means of the original premisses but by others as well.

AA- If, however, M is predicated of all N and all O, there can be no syllogism. The positive relation of the extremes is illustrated by the terms substance—animal—man; the negative relation by substance—animal—number (substance is the middle term). Nor can there be a syllogism if M is predicated of no N and of no O. **EE-** The positive relation of the extremes is illustrated by the terms line—animal—man; the negative relation by line—animal—stone.

Thus it is evident that if there is a syllogism where the terms are universally related, the terms must be related as we stated at the beginning[c]; for if they are otherwise related no conclusion follows by logical necessity.

(2) One universal and one particular premiss. If on the other hand the middle term is universally related to *one* of the others, when it is in a universal relation, either positive or negative, to the major term, and in a particular relation in the opposite sense to that of the universal relation (by 'in the opposite

and Darii) give conclusions which are incompatible with the respective minor premisses.

[c] 27 a 3.

27 a 30 ἀντικειμένως, εἰ μὲν τὸ καθόλου στερητικόν, τὸ ἐν
μέρει καταφατικόν· εἰ δὲ κατηγορικὸν τὸ καθόλου,
τὸ ἐν μέρει στερητικόν), ἀνάγκη γίγνεσθαι συλλογισμὸν
στερητικὸν κατὰ μέρος. εἰ γὰρ τὸ Μ τῷ
μὲν Ν μηδενὶ τῷ δὲ Ξ τινὶ ὑπάρχει, ἀνάγκη τὸ Ν
τινὶ τῷ Ξ μὴ ὑπάρχειν. ἐπεὶ γὰρ ἀντιστρέφει τὸ
στερητικόν, οὐδενὶ τῷ Μ ὑπάρξει τὸ Ν· τὸ δέ γε
35 Μ ὑπέκειτό τινι τῷ Ξ ὑπάρχειν· ὥστε τὸ Ν τινὶ τῷ
Ξ οὐχ ὑπάρξει· γίγνεται γὰρ συλλογισμὸς διὰ τοῦ
πρώτου σχήματος. πάλιν εἰ τὸ μὲν Ν παντὶ τῷ Μ
τῷ δὲ Ξ τινὶ μὴ ὑπάρχει, ἀνάγκη τὸ Ν τινὶ τῷ Ξ
μὴ ὑπάρχειν· εἰ γὰρ παντὶ ὑπάρχει κατηγορεῖται δὲ
27 b καὶ τὸ Μ παντὸς τοῦ Ν, ἀνάγκη τὸ Μ παντὶ τῷ Ξ
ὑπάρχειν· ὑπέκειτο δὲ τινὶ μὴ ὑπάρχειν. καὶ εἰ τὸ
Μ τῷ μὲν Ν παντὶ ὑπάρχει τῷ δὲ Ξ μὴ παντί,
ἔσται συλλογισμὸς ὅτι οὐ παντὶ τῷ Ξ τὸ Ν· ἀπόδειξις
δ' ἡ αὐτή. ἐὰν δὲ τοῦ μὲν Ξ παντὸς τοῦ
5 δὲ Ν μὴ παντὸς κατηγορῆται, οὐκ ἔσται συλλογισμός.
ὅροι ζῷον—οὐσία—κόραξ, ζῷον—λευκόν—
κόραξ. οὐδ' ὅταν τοῦ μὲν Ξ μηδενὸς τοῦ δὲ Ν
τινός. ὅροι τοῦ ὑπάρχειν ζῷον—οὐσία—μονάς, τοῦ
μὴ ὑπάρχειν ζῷον—οὐσία—ἐπιστήμη.

Ὅταν μὲν οὖν ἀντικείμενον ᾖ τὸ καθόλου τῷ κατὰ
10 μέρος, εἴρηται πότ' ἔσται καὶ πότ' οὐκ ἔσται
συλλογισμός· ὅταν δὲ ὁμοιοσχήμονες ὦσιν αἱ προτάσεις,
οἷον ἀμφότεραι στερητικαὶ ἢ καταφατικαί,
οὐδαμῶς ἔσται συλλογισμός. ἔστωσαν γὰρ πρῶτον
στερητικαί, καὶ τὸ καθόλου κείσθω πρὸς τὸ μεῖζον

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[a] Viz. in Ferio, 26 a 25.

[b] In point of fact it is the same syllogism. There is no

sense' I mean that if the universal relation is negative the particular relation is positive, and *vice versa*) to the minor term, the result must be a syllogism which is negative and particular. *E.g.*, if M applies to no N but to some O, it must follow that N does not apply to some O. For since the negative statement is convertible, N will apply to no M. But *ex hypothesi* M applies to some O, and so N will not apply to some O; for we get a syllogism by means of the first figure.[a] Again, if M applies to all N, but does not apply to some O, it must follow that N does not apply to some O. For if it applies to all, and M is predicated of all N, M must apply to all O. But *ex hypothesi* it does not apply to some. And if M applies to all N but not to all O, there will be a syllogism to the effect that N does not apply to all O. The proof is the same as before.[b] If, however, M is predicated of all O but not of all[c] N, there will be no syllogism. Terms to illustrate this case are animal—substance—crow, animal—white—crow. Nor will there be a syllogism when M is predicated of no O but of some N. The positive relation of the extremes may be illustrated by the terms animal—substance—unit; the negative relation by animal—substance—science.

Festino.

Baroco.

OA-

IE-

Thus we have stated under what conditions there will or will not be a syllogism when the universal is opposite in sense to the particular statement. When the premisses are similar in form, *i.e.* both negative or both affirmative, there will in no case be a syllogism. Let us first take them both as negative, and let the universal relation belong to the major term; viz., let

EO-

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real distinction between 'M does not apply to some O' and 'M does not apply to all O.'

[c] *i.e.* not of some N; *cf.* previous note.

27 b ἄκρον, οἷον τὸ Μ τῷ μὲν Ν μηδενὶ τῷ δὲ Ξ τινὶ
15 μὴ ὑπαρχέτω· ἐνδέχεται δὴ καὶ παντὶ καὶ μηδενὶ
τῷ Ξ τὸ Ν ὑπάρχειν. ὅροι τοῦ μὲν μὴ ὑπάρχειν
μέλαν—χιών—ζῷον· τοῦ δὲ παντὶ ὑπάρχειν οὐκ
ἔστι λαβεῖν, εἰ τὸ Μ τῷ Ξ τινὶ μὲν ὑπάρχει τινὶ δὲ
μή. εἰ γὰρ παντὶ τῷ Ξ τὸ Ν τὸ δὲ Μ μηδενὶ τῷ
Ν, τὸ Μ οὐδενὶ τῷ Ξ ὑπάρξει· ἀλλ' ὑπέκειτο τινὶ
20 ὑπάρχειν. οὕτω μὲν οὖν οὐκ ἐγχωρεῖ λαβεῖν ὅρους,
ἐκ δὲ τοῦ ἀδιορίστου δεικτέον· ἐπεὶ γὰρ ἀληθεύεται
τὸ τινὶ μὴ ὑπάρχειν τὸ Μ τῷ Ξ καὶ εἰ μηδενὶ
ὑπάρχει, μηδενὶ δὲ ὑπάρχοντος οὐκ ἦν συλλογισμός, φανερὸν ὅτι οὐδὲ νῦν ἔσται.

Πάλιν ἔστωσαν κατηγορικαί, καὶ τὸ καθόλου
25 κείσθω ὁμοίως, οἷον τὸ Μ τῷ μὲν Ν παντὶ τῷ
δὲ Ξ τινὶ ὑπαρχέτω. ἐνδέχεται δὴ τὸ Ν τῷ Ξ καὶ
παντὶ καὶ μηδενὶ ὑπάρχειν. ὅροι τοῦ μηδενὶ ὑπάρχειν λευκόν—κύκνος—λίθος· τοῦ δὲ παντὶ οὐκ
ἔσται λαβεῖν διὰ τὴν αὐτὴν αἰτίαν ἥνπερ πρότερον,
ἀλλ' ἐκ τοῦ ἀδιορίστου δεικτέον.

Εἰ δὲ τὸ καθόλου πρὸς τὸ ἔλαττον ἄκρον ἐστὶ
30 καὶ τὸ Μ τῷ μὲν Ξ μηδενὶ τῷ δὲ Ν τινὶ μὴ
ὑπάρχει, ἐνδέχεται τὸ Ν τῷ Ξ καὶ παντὶ καὶ μηδενὶ ὑπάρχειν. ὅροι τοῦ ὑπάρχειν λευκόν—ζῷον
—κόραξ, τοῦ μὴ ὑπάρχειν λευκόν—λίθος—κόραξ.
εἰ δὲ κατηγορικαὶ αἱ προτάσεις, ὅροι τοῦ μὴ
ὑπάρχειν λευκόν—ζῷον—χιών, τοῦ ὑπάρχειν λευκόν
—ζῷον—κύκνος.

M apply to no N, and not apply to some O. Then it is possible both for N to apply to all O and for it to apply to no O. The negative relation of the extremes may be illustrated by the terms black—snow—animal; but we cannot find terms to illustrate the positive universal relation, since M applies to some O although it also does not apply to some. For if N applies to all O, and M to no N, M will apply to no O; but *ex hypothesi* it applies to some. Thus it is not possible to find terms under these conditions, and our proof must be drawn from the indefinite nature of the particular premiss. For since it is true to say that M does not apply to some O if it in fact applies to none, and we saw that when it applies to none there is no syllogism, evidently there will be no syllogism in the present case either.

Again, let us take the premisses as affirmative, and let the universal relation be the same as before; *i.e.* let M apply to all N and to some O. Then it is possible both for N to apply to all O and for it to apply to no O. Examples of terms where it applies to none are white—swan—stone; but it will be impossible to find examples where it applies to all O, for the same reason as before; and our proof must be drawn from the indefinite nature of the particular premiss. AI-

If the universal relation belongs to the minor term, *i.e.* if M applies to no O and does not apply to some N, it is possible both for N to apply to all O and for it to apply to no O. Examples of terms where it does apply are white—animal—crow; where it does not apply, white—stone—crow. If the premisses are affirmative, examples of terms where the relation of the extremes is negative are white—animal—snow; where it is positive, white—animal—swan. OE- IA-

27 b 35 Φανερὸν οὖν, ὅταν ὁμοιοσχήμονες ὦσιν αἱ προτάσεις καὶ ἡ μὲν καθόλου ἡ δ' ἐν μέρει, ὅτι οὐδαμῶς γίγνεται συλλογισμός· ἀλλ' οὐδ' εἴ τινι ἑκατέρῳ ὑπάρχει ἢ μὴ ὑπάρχει, ἢ τῷ μὲν τῷ δὲ μή, ἢ μηδετέρῳ[1] παντί, ἢ ἀδιορίστως. ὅροι δὲ κοινοὶ πάντων λευκόν—ζῷον—ἄνθρωπος, λευκόν—ζῷον—ἄψυχον.

28 a Φανερὸν οὖν ἐκ τῶν εἰρημένων ὅτι ἐάν τε οὕτως ἔχωσιν οἱ ὅροι πρὸς ἀλλήλους ὡς ἐλέχθη, γίγνεται συλλογισμὸς ἐξ ἀνάγκης, ἄν τ' ᾖ συλλογισμός, ἀνάγκη τοὺς ὅρους οὕτως ἔχειν. δῆλον δὲ καὶ ὅτι 5 πάντες ἀτελεῖς εἰσιν οἱ ἐν τούτῳ τῷ σχήματι συλλογισμοί (πάντες γὰρ ἐπιτελοῦνται προσλαμβανομένων τινῶν, ἃ ἢ ἐνυπάρχει τοῖς ὅροις ἐξ ἀνάγκης ἢ τίθενται ὡς ὑποθέσεις, οἷον ὅταν διὰ τοῦ ἀδυνάτου δεικνύωμεν), καὶ ὅτι οὐ γίγνεται καταφατικὸς συλλογισμὸς διὰ τούτου τοῦ σχήματος, ἀλλὰ πάντες στερητικοί, καὶ οἱ καθόλου καὶ οἱ κατὰ μέρος.

10 VI. Ἐὰν δὲ τῷ αὐτῷ τὸ μὲν παντὶ τὸ δὲ μηδενὶ ὑπάρχῃ, ἢ ἄμφω παντὶ ἢ μηδενί, τὸ μὲν σχῆμα τὸ τοιοῦτον καλῶ τρίτον, μέσον δ' ἐν αὐτῷ λέγω καθ' οὗ ἄμφω τὰ κατηγορούμενα, ἄκρα δὲ τὰ κατηγορούμενα, μεῖζον δ' ἄκρον τὸ πορρώτερον τοῦ μέσου, ἔλαττον δὲ τὸ ἐγγύτερον· τίθεται δὲ τὸ 15 μέσον ἔξω μὲν τῶν ἄκρων ἔσχατον δὲ τῇ θέσει.

Τέλειος μὲν οὖν οὐ γίγνεται συλλογισμὸς οὐδ' ἐν τούτῳ τῷ σχήματι, δυνατὸς δ' ἔσται καὶ καθόλου

[1] μηδ' ἑτέρῳ u, Waitz.

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[a] 27 a 3-5, 26-32.

[b] Aristotle has in mind the formula which he uses in l. 18,

Thus it is evident that when the premisses are similar in form and when one is universal and the other particular, in no case do we get a syllogism; nor again if the middle term applies or does not apply to some of each subject, or applies to some of one but not to some of the other, or does not apply to all of either, or is related to them indefinitely. Examples of terms which are applicable to all these cases are white—animal—man, white—animal—inanimate.

(3) Other combinations of premisses.
II-
OO-
IO-
OI-

Thus it is evident from the foregoing analysis that if the terms are related to one another in the manner described,[a] a syllogism necessarily follows; and that if there is a syllogism, the terms must be thus related. It is obvious also that all syllogisms in this figure are imperfect (since they are all completed by assuming certain additional premisses which are either necessarily implicit in the terms or assumed as hypotheses, *e.g.*, when we prove our result by reduction *ad impossibile*) and that we do not get an affirmative syllogism by this figure; all the syllogisms are negative, whether universal or particular.

Third Figure
Position of the terms.

VI. If one of the terms applies to all and the other to none of the same subject, or if both terms apply to all or none of it, I call this kind of figure the Third; and in it by the middle I mean that of which both the predications are made; by extremes the predicates; by the major term that which is the middle; and by the minor that which is nearer to it. The middle is placed outside the extremes, and is last by position.[b]

(1) Both premisses universal.

Now we do not get a perfect syllogism in this figure either; but there will be a valid[c] syllogism whether

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where P stands for the major, R for the minor and S for the middle term.

[c] *i.e.* imperfect.

28 a
καὶ μὴ καθόλου τῶν ὅρων ὄντων πρὸς τὸ μέσον.
καθόλου μὲν οὖν ὄντων, ὅταν καὶ τὸ Π καὶ τὸ Ρ
παντὶ τῷ Σ ὑπάρχῃ, ὅτι τινὶ τῷ Ρ τὸ Π ὑπάρξει
20 ἐξ ἀνάγκης· ἐπεὶ γὰρ ἀντιστρέφει τὸ κατηγορικόν,
ὑπάρξει τὸ Σ τινὶ τῷ Ρ, ὥστ' ἐπεὶ τῷ μὲν Σ παντὶ
τὸ Π τῷ δὲ Ρ τινὶ τὸ Σ, ἀνάγκη τὸ Π τινὶ τῷ Ρ
ὑπάρχειν· γίγνεται γὰρ συλλογισμὸς διὰ τοῦ πρώ-
του σχήματος. ἔστι δὲ καὶ διὰ τοῦ ἀδυνάτου καὶ
τῷ ἐκθέσθαι ποιεῖν τὴν ἀπόδειξιν· εἰ γὰρ ἄμφω
25 παντὶ τῷ Σ ὑπάρχει, ἂν ληφθῇ τι τῶν Σ οἷον τὸ
Ν, τούτῳ καὶ τὸ Π καὶ τὸ Ρ ὑπάρξει, ὥστε τινὶ
τῷ Ρ τὸ Π ὑπάρξει.

Καὶ ἂν τὸ μὲν Ρ παντὶ τῷ Σ τὸ δὲ Π μηδενὶ
ὑπάρχῃ, ἔσται συλλογισμὸς ὅτι τὸ Π τινὶ τῷ Ρ
οὐχ ὑπάρξει ἐξ ἀνάγκης· ὁ γὰρ αὐτὸς τρόπος τῆς
ἀποδείξεως ἀντιστραφείσης τῆς ΡΣ προτάσεως.
30 δειχθείη δ' ἂν καὶ διὰ τοῦ ἀδυνάτου, καθάπερ ἐπὶ
τῶν προτέρων.

Ἐὰν δὲ τὸ μὲν Ρ μηδενὶ τὸ δὲ Π παντὶ ὑπάρχῃ
τῷ Σ, οὐκ ἔσται συλλογισμός. ὅροι τοῦ ὑπάρχειν
ζῷον—ἵππος—ἄνθρωπος, τοῦ μὴ ὑπάρχειν ζῷον
—ἄψυχον—ἄνθρωπος. οὐδ' ὅταν ἄμφω κατὰ μη-
δενὸς τοῦ Σ λέγηται, οὐκ ἔσται συλλογισμός.
35 ὅροι τοῦ ὑπάρχειν ζῷον—ἵππος—ἄψυχον, τοῦ μὴ
ὑπάρχειν ἄνθρωπος—ἵππος—ἄψυχον· μέσον ἄψυχον.

Φανερὸν οὖν καὶ ἐν τούτῳ τῷ σχήματι πότ'
ἔσται καὶ πότ' οὐκ ἔσται συλλογισμὸς καθόλου τῶν
ὅρων ὄντων. ὅταν μὲν γὰρ ἀμφότεροι οἱ ὅροι ὦσι
κατηγορικοί, ἔσται συλλογισμὸς ὅτι τινὶ ὑπάρχει

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[a] In Darii, 26 a 23.

[b] This does not, of course, mean that the conclusion is apodeictic, but that it follows necessarily from the premisses.

the terms are in a universal relation to the middle or not. If they are in a universal relation, when both P and R apply to all S, it will necessarily follow that P applies to some R; for since the affirmative statement is **Darapti.** convertible, S will apply to some R, and so since P applies to all S and S to some R, P must apply to some R; for we get a syllogism by means of the first figure.[a] It is also possible to prove this by reduction *ad impossibile*, and by exposition; for where both terms apply to all S, if we take one of the Ss, *e.g.* N, both P and R will apply to it, and so P will apply to some R.

Also if R applies to all S, and P to none, there will **Felapton.** be a syllogism to the effect that P necessarily[b] does not apply to some R. The method of proof is the same as before, the premiss RS being converted.[c] The result could also be proved by reduction *ad impossibile*, as in the former examples.

If, however, R applies to no S and P to all S, there **AE-** will be no syllogism. Examples of terms where the relation of the extremes is positive are animal—horse—man; where it is negative, animal—inanimate—man. Nor will there be a syllogism when both terms **EE-** are predicated of no S. Examples of terms where the relation of the extremes is positive are animal—horse—inanimate; where it is negative, man—horse—inanimate. Here 'inanimate' is the middle term.

It is evident, then, in this figure also when there will or will not be a syllogism if the terms are universally related. When both the terms are affirmative,[d] there will be a syllogism to the effect that one extreme

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[c] This gives a syllogism in Ferio, 26 a 25.

[d] A loose and, strictly speaking, meaningless expression. Aristotle should have said 'when both premisses are affirmative.'

τὸ ἄκρον τῷ ἄκρῳ, ὅταν δὲ στερητικοί, οὐκ ἔσται· ὅταν δ' ὁ μὲν ᾖ στερητικὸς ὁ δὲ καταφατικός, ἐὰν μὲν ὁ μείζων γένηται στερητικὸς ἅτερος δὲ καταφατικός, ἔσται συλλογισμὸς ὅτι τινὶ οὐχ ὑπάρχει τὸ ἄκρον τῷ ἄκρῳ, ἐὰν δ' ἀνάπαλιν, οὐκ ἔσται.

Ἐὰν δ' ὁ μὲν ᾖ καθόλου πρὸς τὸ μέσον ὁ δ' ἐν μέρει, κατηγορικῶν μὲν ὄντων ἀμφοῖν ἀνάγκη γίγνεσθαι συλλογισμόν, ἂν ὁποτεροσοῦν ᾖ καθόλου τῶν ὅρων. εἰ γὰρ τὸ μὲν Ρ παντὶ τῷ Σ τὸ δὲ Π τινί, ἀνάγκη τὸ Π τινὶ τῷ Ρ ὑπάρχειν· ἐπεὶ γὰρ ἀντιστρέφει τὸ καταφατικόν, ὑπάρξει τὸ Σ τινὶ τῷ Π, ὥστ' ἐπεὶ τὸ μὲν Ρ παντὶ τῷ Σ τὸ δὲ Σ τινὶ τῷ Π, καὶ τὸ Ρ τινὶ τῷ Π ὑπάρξει· ὥστε τὸ Π τινὶ τῷ Ρ. πάλιν εἰ τὸ μὲν Ρ τινὶ τῷ Σ τὸ δὲ Π παντὶ ὑπάρχει, ἀνάγκη τὸ Π τινὶ τῷ Ρ ὑπάρχειν· ὁ γὰρ αὐτὸς τρόπος τῆς ἀποδείξεως. ἔστι δ' ἀποδεῖξαι καὶ διὰ τοῦ ἀδυνάτου καὶ τῇ ἐκθέσει, καθάπερ ἐπὶ τῶν προτέρων.

Ἐὰν δ' ὁ μὲν ᾖ κατηγορικὸς ὁ δὲ στερητικός, καθόλου δὲ ὁ κατηγορικός, ὅταν μὲν ὁ ἐλάττων ᾖ κατηγορικός, ἔσται συλλογισμός· εἰ γὰρ τὸ Ρ παντὶ τῷ Σ τὸ δὲ Π τινὶ μὴ ὑπάρχει, ἀνάγκη τὸ Π τινὶ τῷ Ρ μὴ ὑπάρχειν (εἰ γὰρ παντί, καὶ τὸ Ρ παντὶ τῷ Σ, καὶ τὸ Π παντὶ τῷ Σ ὑπάρξει· ἀλλ' οὐχ ὑπῆρχεν· δείκνυται δὲ καὶ ἄνευ τῆς ἀπαγωγῆς, ἐὰν ληφθῇ τι τῶν Σ ᾧ τὸ Π μὴ ὑπάρχει)· ὅταν δ' ὁ μείζων ᾖ κατηγορικός, οὐκ ἔσται συλλογισμός, οἷον εἰ τὸ μὲν Π παντὶ τῷ Σ τὸ δὲ Ρ τινὶ τῷ Σ μὴ ὑπάρχει. ὅροι τοῦ παντὶ ὑπάρχειν ἔμψυχον—

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[a] By Darii in the first figure.

[b] *Sc.* by converting the premiss RS, which again gives a syllogism in Darii.

applies to some of the other ; but when they are negative there will be no syllogism. When one term is negative and the other affirmative, if the major is negative and the other affirmative, there will be a syllogism to the effect that one extreme does not apply to some of the other ; but with the opposite arrangement there will be no syllogism.

(2) One universal and one particular premiss. Disamis. If, however, one of the terms is in a universal and the other in a particular relation to the middle, where both are affirmative a syllogism must follow, whichever of the two terms is universal. For if R applies to all S and P to some S, P must apply to some R ; for since the affirmative premiss is convertible, S will apply to some P, and so since R applies to all S and S to some P, R will also apply to some P,[a] and so P will apply to some R. **Datisi.** Again, if R applies to some S and P to all S, P must apply to some R. The method of proof is the same as before.[b] It is also possible to prove this result by reduction *ad impossibile* and by exposition, just as in the previous examples.

Bocardo. If one term is affirmative and the other negative, and the former is universal, when the minor term is affirmative there will be a syllogism. For if R applies to all S, and P does not apply to some S, it necessarily follows that P does not apply to some R. For if it applies to all R, and R to all S, P will also apply to all S[c] ; but *ex hypothesi* it does not. This can also be proved without reduction *ad impossibile* if we take some S to which P does not apply. **AO–** But when the major is affirmative, there will be no syllogism ; *e.g.*, if P applies to all S and R does not apply to some S. Examples of terms where the relation of the extremes is universal and positive are animate—man—animal ;

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[c] Barbara.

28 b
25 ἄνθρωπος—ζῷον· τοῦ δὲ μηδενὶ οὐκ ἔστι λαβεῖν
ὅρους, εἰ τινὶ μὲν ὑπάρχει τῷ Σ τὸ Ρ τινὶ δὲ μή·
εἰ γὰρ παντὶ τὸ Π τῷ Σ ὑπάρχει τὸ δὲ Ρ τινὶ τῷ
Σ, καὶ τὸ Π τινὶ τῷ Ρ ὑπάρξει· ὑπέκειτο δὲ μηδενὶ
ὑπάρχειν. ἀλλ' ὥσπερ ἐν τοῖς πρότερον ληπτέον·
ἀδιορίστου γὰρ ὄντος τοῦ τινὶ μὴ ὑπάρχειν καὶ τὸ
30 μηδενὶ ὑπάρχον ἀληθὲς εἰπεῖν τινὶ μὴ ὑπάρχειν·
μηδενὶ δὲ ὑπάρχοντος οὐκ ἦν συλλογισμός.
φανερὸν οὖν ὅτι οὐκ ἔσται συλλογισμός.

Ἐὰν δ' ὁ στερητικὸς ᾖ καθόλου τῶν ὅρων, ὅταν
μὲν ὁ μείζων ᾖ στερητικὸς ὁ δὲ ἐλάττων κατη-
γορικός, ἔσται συλλογισμός· εἰ γὰρ τὸ Π μηδενὶ
τῷ Σ τὸ δὲ Ρ τινὶ ὑπάρχει τῷ Σ, τὸ Π τινὶ τῷ Ρ
35 οὐχ ὑπάρξει, πάλιν γὰρ ἔσται τὸ πρῶτον σχῆμα
τῆς ΡΣ προτάσεως ἀντιστραφείσης· ὅταν δὲ ὁ
ἐλάττων ᾖ στερητικός, οὐκ ἔσται συλλογισμός.
ὅροι τοῦ ὑπάρχειν ζῷον—ἄνθρωπος—ἄγριον, τοῦ
μὴ ὑπάρχειν ζῷον—ἐπιστήμη—ἄγριον· μέσον ἐν[1]
ἀμφοῖν τὸ ἄγριον.

Οὐδ' ὅταν ἀμφότεροι στερητικοὶ τεθῶσιν, ᾖ δ'
29 a ὁ μὲν καθόλου ὁ δ' ἐν μέρει. ὅροι ὅταν ὁ ἐλάττων
ᾖ καθόλου πρὸς τὸ μέσον, ζῷον—ἐπιστήμη—
ἄγριον, ζῷον—ἄνθρωπος—ἄγριον· ὅταν δ' ὁ μείζων,
τοῦ μὲν μὴ ὑπάρχειν κόραξ—χιών—λευκόν· τοῦ δ'
ὑπάρχειν οὐκ ἔστι λαβεῖν, εἰ τὸ Ρ τινὶ μὲν ὑπάρχει
5 τῷ Σ τινὶ δὲ μὴ ὑπάρχει (εἰ γὰρ τὸ Π παντὶ τῷ

[1] ἐν om. Cn.

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[a] *i.e.* on the assumption that the relation of the extremes is universal and negative.

but we cannot find terms where the relation is universal and negative, since R applies to some S although it also does not apply to some. For if P applies to all S, and R to some S, then P will apply to some R. But *ex hypothesi*[a] it applies to none. The explanation must be apprehended as in the former examples[b]; for since the statement that one term does not apply to another is indefinite, it is true to say that that which applies to none does not apply to some; but we saw[c] that when R applies to no S there is no syllogism. Thus it is evident that there will be no syllogism in this case.

If, however, the negative term is universal, when the major is negative and the minor affirmative, there will be a syllogism. For if P applies to no S, and R Ferison. applies to some S, P will not apply to some R; for we shall have the first figure[d] again when the premiss RS is converted. But when the minor term is IE- negative there will be no syllogism. Examples of terms where the relation of the extremes is positive are animal—man—wild; where it is negative, animal—science—wild. In both cases 'wild' is the middle term.

Nor will there be a syllogism when both terms are taken negatively, and one is universal and the other particular. Examples of terms when it is the minor term that is in a universal relation to the middle are OE- animal—science—wild, animal—man—wild. When it is the major that is in this relation, examples of EO- terms where the relation of the extremes is negative are crow—snow—white; but where it is positive terms cannot be found, since R applies to some S although it also does not apply to some (for if P

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[b] 27 b 20, 28.

[c] 28 a 30.

[d] In Ferio, 26 a 25.

Ρ τὸ δὲ Ρ τινὶ τῷ Σ, καὶ τὸ Π τινὶ τῷ Σ· ὑπέκειτο δὲ μηδενί), ἀλλ' ἐκ τοῦ ἀδιορίστου δεικτέον.

Οὐδ' ἂν ἑκάτερος τινὶ τῷ μέσῳ ὑπάρχῃ ἢ μὴ ὑπάρχῃ, ἢ ὁ μὲν ὑπάρχῃ ὁ δὲ μὴ ὑπάρχῃ, ἢ ὁ μὲν τινὶ ὁ δὲ μὴ παντί, ἢ ἀδιορίστως, οὐκ ἔσται συλλογισμὸς οὐδαμῶς. ὅροι δὲ κοινοὶ πάντων ζῷον—ἄνθρωπος—λευκόν, ζῷον—ἄψυχον—λευκόν.

Φανερὸν οὖν καὶ ἐν τούτῳ τῷ σχήματι πότ' ἔσται καὶ πότ' οὐκ ἔσται συλλογισμός, καὶ ὅτι ἐχόντων τε τῶν ὅρων ὡς ἐλέχθη γίγνεται συλλογισμὸς ἐξ ἀνάγκης, ἄν τ' ᾖ συλλογισμός, ἀνάγκη τοὺς ὅρους οὕτως ἔχειν. φανερὸν δὲ καὶ ὅτι πάντες ἀτελεῖς εἰσιν οἱ ἐν τούτῳ τῷ σχήματι συλλογισμοί (πάντες γὰρ τελειοῦνται προσλαμβανομένων τινῶν) καὶ ὅτι συλλογίσασθαι τὸ καθόλου διὰ τούτου τοῦ σχήματος οὐκ ἔσται οὔτε στερητικὸν οὔτε καταφατικόν.

VII. Δῆλον δὲ καὶ ὅτι ἐν ἅπασι τοῖς σχήμασιν, ὅταν μὴ γίγνηται συλλογισμός, κατηγορικῶν μὲν ἢ στερητικῶν ἀμφοτέρων ὄντων τῶν ὅρων οὐδὲν ὅλως γίγνεται ἀναγκαῖον, κατηγορικοῦ δὲ καὶ στερητικοῦ, καθόλου ληφθέντος τοῦ στερητικοῦ ἀεὶ γίγνεται συλλογισμὸς τοῦ ἐλάττονος ἄκρου πρὸς τὸ μεῖζον, οἷον εἰ τὸ μὲν Α παντὶ τῷ Β ἢ τινί, τὸ δὲ Β μηδενὶ τῷ Γ· ἀντιστρεφομένων γὰρ

applies to all R, and R to some S, P also applies to some S; but *ex hypothesi* it applies to none); the proof must be drawn from the indefinite nature of the particular premiss.[a]

Furthermore, if both terms apply or do not apply to some of the middle, or if one applies to some and the other does not, or if one applies to some and the other does not apply to all, or if they are related to the middle indefinitely, there will in no case be a syllogism. Examples of terms common to all these cases are animal—man—white, animal—inanimate—white.

(3) Other combinations of premisses. II-, OO-, IO-, OI-.

Thus it is evident in this figure also when there will or will not be a syllogism; and that where the terms are related in the manner described[b] a syllogism necessarily follows; and that if there is a syllogism the terms must be so related. It is evident also that all the syllogisms in this figure are imperfect (since they are all completed by assuming certain additional premisses); and that it will be impossible to reach a universal conclusion, either negative or affirmative, by means of this figure.

General remarks on the three figures. Indirect conclusion.

VII. It is clear also that in all the figures, whenever we get no ⟨direct⟩ syllogism, where the terms are both affirmative or both negative, there is no necessary conclusion at all; but where one term is affirmative and the other negative, if the negative term is universal we always get a syllogism establishing a relation of the minor to the major extreme.[c] *E.g.*, if A applies to all[d] or some[e] B, and B to no C; for if

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[a] *Cf.* 27 b 20.

[b] 28 a 18, 26, 28 b 5, 15, 31.

[c] The minor being the predicate and the major the subject.

[d] Fapesmo in the first, Fesapo in the fourth figure.

[e] Frisesomorum in the first, Fresison in the fourth figure.

τῶν προτάσεων ἀνάγκη τὸ Γ τινὶ τῷ Α μὴ ὑπάρχειν. ὁμοίως δὲ κἀπὶ τῶν ἑτέρων σχημάτων· ἀεὶ γὰρ γίγνεται διὰ τῆς ἀντιστροφῆς συλλογισμός. δῆλον δὲ καὶ ὅτι τὸ ἀδιόριστον ἀντὶ τοῦ κατηγορικοῦ τοῦ ἐν μέρει τιθέμενον τὸν αὐτὸν ποιήσει συλλογισμὸν ἐν ἅπασι τοῖς σχήμασιν.

Φανερὸν δὲ καὶ ὅτι πάντες οἱ ἀτελεῖς συλλογισμοὶ τελειοῦνται διὰ τοῦ πρώτου σχήματος. ἢ γὰρ δεικτικῶς ἢ διὰ τοῦ ἀδυνάτου περαίνονται πάντες· ἀμφοτέρως δὲ γίγνεται τὸ πρῶτον σχῆμα, δεικτικῶς μὲν τελειουμένων, ὅτι διὰ τῆς ἀντιστροφῆς ἐπεραίνοντο πάντες, ἡ δ' ἀντιστροφὴ τὸ πρῶτον ἐποίει σχῆμα, διὰ δὲ τοῦ ἀδυνάτου δεικνυμένων, ὅτι τεθέντος τοῦ ψεύδους ὁ συλλογισμὸς γίγνεται διὰ τοῦ πρώτου σχήματος· οἷον ἐν τῷ τελευταίῳ σχήματι, εἰ τὸ Α καὶ τὸ Β παντὶ τῷ Γ ὑπάρχει, ὅτι τὸ Α τινὶ τῷ Β ὑπάρχει· εἰ γὰρ μηδενί, τὸ δὲ Β παντὶ τῷ Γ, οὐδενὶ τῷ Γ τὸ Α· ἀλλ' ἦν παντί. ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων.

Ἔστι δὲ καὶ ἀναγαγεῖν πάντας τοὺς συλλογισμοὺς εἰς τοὺς ἐν τῷ πρώτῳ σχήματι καθόλου συλλογισμούς. οἱ μὲν γὰρ ἐν τῷ δευτέρῳ φανερὸν ὅτι δι' ἐκείνων τελειοῦνται, πλὴν οὐχ ὁμοίως πάντες, ἀλλ' οἱ μὲν καθόλου τοῦ στερητικοῦ ἀντιστραφέντος, τῶν δ' ἐν μέρει ἑκάτερος διὰ τῆς εἰς τὸ ἀδύνατον ἀπαγωγῆς· οἱ δ' ἐν τῷ πρώτῳ οἱ κατὰ μέρος ἐπιτελοῦνται μὲν καὶ δι' αὐτῶν, ἔστι δὲ καὶ διὰ

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[a] In either case we get by conversion : C applies to no B
B applies to no A
∴ C does not apply to some A (Ferio).

[b] In the second and third figures this is effected simply by

the premisses are converted it necessarily follows that C does not apply to some A.[a] Similarly too in the other figures, for we always get a syllogism by the process of conversion.[b] It is obvious also that in all the figures if the particular affirmative is replaced by the indefinite the result will be the same syllogism.

All imperfect syllogisms are validated in the first figure.

It is evident also that all imperfect syllogisms are completed by means of the first figure. For all the conclusions are reached either by demonstration or by reduction *ad impossibile*, and in both cases we get the first figure: in the case of those which are completed by demonstration because, as we have seen, all the conclusions are reached by means of conversion, and the conversion produces the first figure; and in the case of those which are demonstrated by reduction *ad impossibile* because if a false premiss is assumed we get the syllogism by means of the first figure. *E.g.*, in the last figure, if A and B apply to all C, we get a syllogism [c] to the effect that A applies to some B; for if it applies to no B, and B applies to all C, A applies to no C. But *ex hypothesi* it applies to all C. Similarly too in the other cases.

All syllogisms reducible to the universal syllogisms of the first figure.

It is possible also to reduce all syllogisms to the universal syllogisms in the first figure. Those in the second figure are obviously completed by their help, but not all in a similar manner: the universal syllogisms are completed by the conversion of the negative statement, and each of the particular ones by a reduction *ad impossibile*. The particular syllogisms in the first figure are indeed completed by means of themselves, but it is possible also to prove them by means

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transposing the premisses. AE gives Cesare and Felapton; IE gives Festino and Ferison.

[c] In Darapti.

29 b

τοῦ δευτέρου σχήματος δεικνύναι εἰς ἀδύνατον ἀπάγοντας, οἷον εἰ τὸ Α παντὶ τῷ Β τὸ δὲ Β τινὶ τῷ Γ, ὅτι τὸ Α τινὶ τῷ Γ. εἰ γὰρ μηδενί, τῷ δὲ Β παντί, οὐδενὶ τῷ Γ τὸ Β ὑπάρξει· τοῦτο γὰρ ἴσμεν διὰ τοῦ δευτέρου σχήματος. ὁμοίως δὲ καὶ ἐπὶ τοῦ στερητικοῦ ἔσται ἡ ἀπόδειξις. εἰ γὰρ τὸ Α μηδενὶ τῷ Β τὸ δὲ Β τινὶ τῷ Γ ὑπάρχει, τὸ Α τινὶ τῷ Γ οὐχ ὑπάρξει· εἰ γὰρ παντί, τῷ δὲ Β μηδενὶ ὑπάρχει, οὐδενὶ τῷ Γ τὸ Β ὑπάρξει· τοῦτο δ' ἦν τὸ μέσον σχῆμα. ὥστ' ἐπεὶ οἱ μὲν ἐν τῷ μέσῳ σχήματι συλλογισμοὶ πάντες ἀνάγονται εἰς τοὺς ἐν τῷ πρώτῳ καθόλου συλλογισμούς, οἱ δὲ κατὰ μέρος ἐν τῷ πρώτῳ εἰς τοὺς ἐν τῷ μέσῳ, φανερὸν ὅτι καὶ οἱ κατὰ μέρος ἀναχθήσονται εἰς τοὺς ἐν τῷ πρώτῳ σχήματι καθόλου συλλογισμούς.

Οἱ δ' ἐν τῷ τρίτῳ καθόλου μὲν ὄντων τῶν ὅρων εὐθὺς ἐπιτελοῦνται δι' ἐκείνων τῶν συλλογισμῶν, ὅταν δ' ἐν μέρει ληφθῶσι, διὰ τῶν ἐν μέρει συλλογισμῶν τῶν ἐν τῷ πρώτῳ σχήματι· οὗτοι δὲ ἀνήχθησαν εἰς ἐκείνους, ὥστε καὶ οἱ ἐν τῷ τρίτῳ σχήματι οἱ κατὰ μέρος. φανερὸν οὖν ὅτι πάντες ἀναχθήσονται εἰς τοὺς ἐν τῷ πρώτῳ σχήματι καθόλου συλλογισμούς.

Οἱ μὲν οὖν τῶν συλλογισμῶν ὑπάρχειν ἢ μὴ ὑπάρχειν δεικνύντες εἴρηται πῶς ἔχουσι, καὶ καθ' αὑτοὺς οἱ ἐκ τοῦ αὐτοῦ σχήματος καὶ πρὸς ἀλλήλους οἱ ἐκ τῶν ἑτέρων σχημάτων.[1]

VIII. Ἐπεὶ δ' ἕτερόν ἐστιν ὑπάρχειν τε καὶ ἐξ

[1] σχημάτων om. d.

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[a] Camestres.

[b] 26 b 34.

[c] *i.e.* the universal syllogisms of the first figure.

of the second figure if we employ reduction *ad impossibile* ; *e.g.*, if A applies to all B, and B to some C, to prove that A applies to some C. For if it applies to no C, but to all B, B will apply to no C ; for we know this by means of the second figure.[a] The proof will take a similar form also in the case of the negative relation. For if A applies to no B, and B applies to some C, A will not apply to some C. For if it applies to all C, but to no B, B will apply to no C ; and this is of the form which we described[b] as the middle figure. And so since the syllogisms in the middle figure can all be reduced to the universal syllogisms in the first figure, and the particular syllogisms in the first figure to the universal syllogisms in the second, it is evident that the particular syllogisms ⟨in the first figure⟩ can also be reduced to the universal syllogisms in that figure.

As for the syllogisms in the third figure, when the terms are universal, they are completed directly by means of the syllogisms mentioned above[c] ; but when the terms are particular, they are completed by means of the particular syllogisms in the first figure. But these, as we have seen, can be reduced to those mentioned above ; and therefore so can the particular syllogisms in the third figure. Thus it is evident that all syllogisms can be reduced to the universal syllogisms in the first figure.

Thus we have stated, with reference to those syllogisms which demonstrate that a predicate simply applies or does not apply to a subject, how those of the same figure are related among themselves, and how those of different figures are related to one another.

VIII. Since ' to apply ' is not the same as ' neces-

29 b
30 ἀνάγκης ὑπάρχειν καὶ ἐνδέχεσθαι ὑπάρχειν (πολλὰ
γὰρ ὑπάρχει μέν, οὐ μέντοι ἐξ ἀνάγκης· τὰ δ'
οὔτ' ἐξ ἀνάγκης οὔθ' ὑπάρχει ὅλως, ἐνδέχεται
δ' ὑπάρχειν), δῆλον ὅτι καὶ συλλογισμὸς ἑκάστου
τούτων ἕτερος ἔσται, καὶ οὐχ ὁμοίως ἐχόντων τῶν
ὅρων, ἀλλ' ὁ μὲν ἐξ ἀναγκαίων ὁ δ' ἐξ ὑπαρχόντων
35 ὁ δ' ἐξ ἐνδεχομένων.

Ἐπὶ μὲν οὖν τῶν ἀναγκαίων σχεδὸν ὁμοίως ἔχει
καὶ ἐπὶ τῶν ὑπαρχόντων· ὡσαύτως γὰρ τιθεμένων
τῶν ὅρων ἔν τε τῷ ὑπάρχειν καὶ τῷ ἐξ ἀνάγκης
ὑπάρχειν ἢ μὴ ὑπάρχειν ἔσται τε καὶ οὐκ ἔσται
30 a συλλογισμός, πλὴν διοίσει τῷ προσκεῖσθαι τοῖς
ὅροις τὸ ἐξ ἀνάγκης ὑπάρχειν ἢ μὴ ὑπάρχειν· τό
τε γὰρ στερητικὸν ὡσαύτως ἀντιστρέφει, καὶ τὸ
ἐν ὅλῳ εἶναι καὶ τὸ κατὰ παντὸς ὁμοίως ἀποδώσομεν.

Ἐν μὲν οὖν τοῖς ἄλλοις τὸν αὐτὸν τρόπον δειχθήσεται
5 διὰ τῆς ἀντιστροφῆς τὸ συμπέρασμα
ἀναγκαῖον ὥσπερ ἐπὶ τοῦ ὑπάρχειν· ἐν δὲ τῷ
μέσῳ σχήματι ὅταν ᾖ τὸ καθόλου καταφατικὸν τὸ
δ' ἐν μέρει στερητικόν, καὶ πάλιν ἐν τῷ τρίτῳ ὅταν
τὸ μὲν καθόλου κατηγορικὸν τὸ δ' ἐν μέρει στερητικόν,
οὐχ ὁμοίως ἔσται ἡ ἀπόδειξις, ἀλλ' ἀνάγκη
10 ἐκθεμένους ᾧ τινὶ ἑκάτερον μὴ ὑπάρχει, κατὰ
τούτου ποιεῖν τὸν συλλογισμόν· ἔσται γὰρ ἀναγ-

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[a] *Cf.* note on 25 a 2.

[b] *Cf.* 25 a 5.

[c] 24 b 26.

[d] The syllogisms in Baroco and Bocardo, when assertoric, are proved by reduction *ad impossibile*, *i.e.* by assuming the contradictory of the conclusion which it is required to prove (27 a 38, 28 b 19). But the contradictory of an apodeictic judgement is problematic; and the combination of an apo-

Assertoric, apodeictic and problematic syllogisms.

sarily to apply ' or ' possibly to apply ' (because there are many predicates which apply, but not necessarily; and others neither apply necessarily nor indeed apply at all, but it is possible that they should apply), it is clear that the syllogism also is different in each of these cases, and that the terms are not related in the same way, but that one type of syllogism is composed of apodeictic, another of assertoric, and another of problematic premisses.[a]

Apodeictic generally follow the rules for assertoric syllogisms.

If the premisses are apodeictic the conditions are, roughly speaking, the same as when they are assertoric. When the terms are related in the same way, then both in assertoric and in apodeictic propositions, whether affirmative or negative, a syllogism will or will not result in the same way. The only difference will be that the terms will have attached to them the words ' *necessarily* applies ' or ' *necessarily* does not apply.' For the negative premiss converts in the same way,[b] and we shall give the same explanation[c] of the expression ' to be wholly contained in ' or ' to be predicated of all.'

Exceptions.

Thus in all the other cases the conclusion will be shown to be necessary in the same way as in an assertoric syllogism, by means of conversion; but in the middle figure, when the universal statement is affirmative and the particular negative, and again in the third figure when the universal statement is affirmative and the particular negative, the proof will not take the same form.[d] We must take examples of that portion of its subject to which each predicate does not apply, and draw the conclusion from this; for with this combination of terms we shall get a

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deictic with a problematic premiss cannot give an apodeictic conclusion (ch. xvi).

καίως ἐπὶ τούτων· εἰ δὲ κατὰ τοῦ ἐκτεθέντος ἐστὶν ἀναγκαῖος, καὶ κατ' ἐκείνου τινός· τὸ γὰρ ἐκτεθὲν ὅπερ ἐκεῖνό τί ἐστιν. γίγνεται δὲ τῶν συλλογισμῶν ἑκάτερος ἐν τῷ οἰκείῳ σχήματι.

IX. Συμβαίνει δέ ποτε καὶ τῆς ἑτέρας προτάσεως ἀναγκαίας οὔσης ἀναγκαῖον γίγνεσθαι τὸν συλλογισμόν, πλὴν οὐχ ὁποτέρας ἔτυχεν, ἀλλὰ τῆς πρὸς τὸ μεῖζον ἄκρον· οἷον εἰ τὸ μὲν Α τῷ Β ἐξ ἀνάγκης εἴληπται ὑπάρχον (ἢ μὴ ὑπάρχον), τὸ δὲ Β τῷ Γ ὑπάρχον μόνον· οὕτως γὰρ εἰλημμένων τῶν προτάσεων ἐξ ἀνάγκης τὸ Α τῷ Γ ὑπάρξει (ἢ οὐχ ὑπάρξει)· ἐπεὶ γὰρ παντὶ τῷ Β ἐξ ἀνάγκης ὑπάρχει (ἢ οὐχ ὑπάρχει) τὸ Α, τὸ δὲ Γ τι τῶν Β ἐστί, φανερὸν ὅτι καὶ τῷ[1] Γ ἐξ ἀνάγκης ἔσται θάτερον τούτων.

Εἰ δὲ τὸ μὲν ΑΒ μή ἐστιν ἀναγκαῖον τὸ δὲ ΒΓ ἀναγκαῖον, οὐκ ἔσται τὸ συμπέρασμα ἀναγκαῖον. εἰ γὰρ ἔστι,[2] συμβήσεται τὸ Α τινὶ τῷ Β ὑπάρχειν ἐξ ἀνάγκης διά τε τοῦ πρώτου καὶ διὰ τοῦ τρίτου σχήματος. τοῦτο δὲ ψεῦδος· ἐνδέχεται γὰρ τοιοῦτον εἶναι τὸ Β ᾧ ἐγχωρεῖ τὸ Α μηδενὶ ὑπάρχειν. ἔτι καὶ ἐκ τῶν ὅρων φανερὸν ὅτι οὐκ ἔσται τὸ συμπέρασμα ἀναγκαῖον, οἷον εἰ τὸ μὲν Α εἴη κίνησις, τὸ δὲ Β ζῷον, ἐφ' ᾧ δὲ τὸ Γ ἄνθρωπος· ζῷον μὲν γὰρ ὁ ἄνθρωπος ἐξ ἀνάγκης ἐστί, κινεῖται δὲ τὸ ζῷον οὐκ ἐξ ἀνάγκης, οὐδ' ὁ ἄνθρωπος.

[1] τῷ AB^{1}C : τὸ B^{2} diu.
[2] ἔστι ABdu : ἔσται Cfi.

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[a] *e.g.*, we have in Baroco M necessarily applies to all N
M necessarily does not apply to
some O.

necessary conclusion. And if the conclusion is necessarily true of the selected examples, then it will be necessarily true of some of the original term, since that is identical with the selected example.[a] Each of these syllogisms is effected in its own figure.[b]

An apodeictic major premiss sometimes gives an apodeictic conclusion even if the minor premiss is assertoric. First figure. (*a*) Universal syllogisms.

IX. It sometimes happens that we get an apodeictic syllogism even when only one of the premisses—not either of the two indifferently, but the major premiss—is apodeictic: *e.g.*, if A has been taken as necessarily applying or not applying to B, and B as simply applying to C. If the premisses are taken in this way A will necessarily apply (or not apply) to C. For since A necessarily applies (or does not apply) to all B, and C is some B, obviously A must also apply (or not apply) to C.[c]

If, however, the premiss AB is not apodeictic, but BC is, the conclusion will not be apodeictic. If it is, it must follow, both by the first and by the third figure, that A applies to some B. But this is false; for B may be such that it is possible for A to apply to no B. Further, it is also evident from a consideration of the terms that the conclusion will not be apodeictic: *e.g.*, supposing A to be 'motion,' B 'animal,' and C 'man.' Man is necessarily an animal, but the animal is not necessarily moved; nor is the man. Similarly

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If we take part of O, P, such that M necessarily applies to no P, and substitute this for the minor premiss, we can infer that N necessarily applies to no P; *i.e.*, necessarily does not apply to some O. Similarly with Bocardo.

[b] Baroco by Camestres, and Bocardo by Felapton.

[c] The argument is fallacious, and Bekker's defence of it (*A.T.M.* p. 39) depends upon a symbolism which obscures the real issue. The relation of A to C cannot be apodeictic unless C is *necessarily* 'some B.' Aristotle does not distinguish clearly between assertoric and apodeictic relations; *cf.* Introd. p. 190.

80 a
ὁμοίως δὲ καὶ εἰ στερητικὸν εἴη τὸ ΑΒ· ἡ γὰρ
αὐτὴ ἀπόδειξις.

Ἐπὶ δὲ τῶν ἐν μέρει συλλογισμῶν, εἰ μὲν τὸ
35 καθόλου ἐστὶν ἀναγκαῖον, καὶ τὸ συμπέρασμα ἔσται
ἀναγκαῖον, εἰ δὲ τὸ κατὰ μέρος, οὐκ ἀναγκαῖον,
οὔτε στερητικῆς οὔτε κατηγορικῆς οὔσης τῆς
καθόλου προτάσεως. ἔστω δὴ πρῶτον τὸ καθόλου
ἀναγκαῖον, καὶ τὸ μὲν Α παντὶ τῷ Β ὑπαρχέτω ἐξ
ἀνάγκης, τὸ δὲ Β τινὶ τῷ Γ ὑπαρχέτω μόνον·
40 ἀνάγκη δὴ τὸ Α τινὶ τῷ Γ ὑπάρχειν ἐξ ἀνάγκης·
τὸ γὰρ Γ ὑπὸ τὸ Β ἐστί, τῷ δὲ Β παντὶ τὸ Α[1]
80 b ὑπῆρχεν ἐξ ἀνάγκης. ὁμοίως δὲ καὶ εἰ στερητικὸς
εἴη ὁ συλλογισμός· ἡ γὰρ αὐτὴ ἔσται ἀπόδειξις.
εἰ δὲ τὸ κατὰ μέρος ἐστὶν ἀναγκαῖον, οὐκ ἔσται τὸ
συμπέρασμα ἀναγκαῖον· οὐδὲν γὰρ ἀδύνατον συμπίπτει,
5 καθάπερ οὐδ' ἐν τοῖς καθόλου συλλογισμοῖς.
ὁμοίως δὲ κἀπὶ τῶν στερητικῶν. ὅροι κίνησις—
ζῷον—λευκόν.

X. Ἐπὶ δὲ τοῦ δευτέρου σχήματος, εἰ μὲν ἡ
στερητικὴ πρότασίς ἐστιν ἀναγκαία, καὶ τὸ συμπέρασμα
ἔσται ἀναγκαῖον, εἰ δ' ἡ κατηγορική, οὐκ
10 ἀναγκαῖον. ἔστω γὰρ πρῶτον ἡ στερητικὴ ἀναγκαία,
καὶ τὸ Α τῷ μὲν Β μηδενὶ ἐνδεχέσθω, τῷ
δὲ Γ ὑπαρχέτω μόνον. ἐπεὶ οὖν ἀντιστρέφει τὸ
στερητικόν, οὐδὲ τὸ Β τῷ Α οὐδενὶ ἐνδέχεται·
τὸ δὲ Α παντὶ τῷ Γ ὑπάρχει, ὥστ' οὐδενὶ τῷ Γ τὸ
Β ἐνδέχεται· τὸ γὰρ Γ ὑπὸ τὸ Α ἐστίν. ὡσαύτως
δὲ καὶ εἰ πρὸς τῷ Γ τεθείη[2] τὸ στερητικόν· εἰ γὰρ
15 τὸ Α μηδενὶ τῷ Γ ἐνδέχεται, οὐδὲ τὸ Γ οὐδενὶ τῷ
Α ἐγχωρεῖ· τὸ δὲ Α παντὶ τῷ Β ὑπάρχει, ὥστ'

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[1] τὸ Α om. B, Waitz: habent post ἀνάγκης dfu.

[2] τεθείη Alexander, Philoponus, Themistius: τεθῇ codd.

also if the premiss AB is negative, for the proof is the same.

(*b*) Particular syllogisms.

In particular syllogisms, if the universal premiss is apodeictic, the conclusion will also be apodeictic ; but if it is the particular premiss that is apodeictic, the conclusion is not apodeictic, whether the universal premiss is negative or affirmative. Let us first take the universal premiss as apodeictic, and let A necessarily apply to all B, and B simply apply to some C. Then it must follow that A necessarily applies to some C. For C falls under B,[a] and *ex hypothesi* A applies necessarily to all B. Similarly too if the syllogism is negative ; for the proof will be the same. But if the particular premiss is apodeictic, the conclusion will not be apodeictic ; for there is no impossibility involved ⟨if it is not true⟩, just as there was none in the universal syllogisms. Similarly too in the case of negative premisses.[b] Examples of terms are motion—animal—white.

Second figure. (*a*) Universal syllogisms

X. In the second figure, if the negative premiss is apodeictic, the conclusion will also be apodeictic ; but not if the affirmative premiss is apodeictic. First let the negative premiss be apodeictic, and let it be impossible for A to apply to any B, but let it simply apply to C. Then since the negative premiss is convertible, it is also impossible for B to apply to any A. But A applies to all C. Therefore B cannot apply to any C ; for C falls under A.[c] The same also holds good if the negative statement refers to C. For if A cannot apply to any C, neither can C apply to any A. But A applies to all B. Therefore C cannot

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[a] *Cf.* 26 a 22 note; and for the fallacy see note on 30 a 15-23.

[b] *i.e.* when one of the premisses is negative.

[c] *Cf.* notes on 26 a 22, 30 a 15-23.

30 b
οὐδενὶ τῶν Β τὸ Γ ἐνδέχεται· γίγνεται γὰρ τὸ
πρῶτον σχῆμα πάλιν. οὐκ ἄρα οὐδὲ τὸ Β τῷ Γ·
ἀντιστρέφει γὰρ ὁμοίως.

Εἰ δ' ἡ κατηγορικὴ πρότασίς ἐστιν ἀναγκαία, οὐκ
20 ἔσται τὸ συμπέρασμα ἀναγκαῖον. ὑπαρχέτω γὰρ
τὸ Α παντὶ τῷ Β ἐξ ἀνάγκης, τῷ δὲ Γ μηδενὶ
ὑπαρχέτω μόνον. ἀντιστραφέντος οὖν τοῦ στερη-
τικοῦ τὸ πρῶτον γίγνεται σχῆμα· δέδεικται δ' ἐν
τῷ πρώτῳ ὅτι μὴ ἀναγκαίας οὔσης τῆς πρὸς τὸ
μεῖζον στερητικῆς οὐδὲ τὸ συμπέρασμα ἔσται
ἀναγκαῖον, ὥστ' οὐδ' ἐπὶ τούτων ἔσται ἐξ ἀνάγκης.

25 Ἔτι δ' εἰ τὸ συμπέρασμά ἐστιν ἀναγκαῖον,
συμβαίνει τὸ Γ τινὶ τῷ Α μὴ ὑπάρχειν ἐξ ἀνάγκης·
εἰ γὰρ τὸ Β τῷ Γ μηδενὶ ὑπάρχει ἐξ ἀνάγκης, οὐδὲ
τὸ Γ τῷ Β οὐδενὶ ὑπάρξει ἐξ ἀνάγκης· τὸ δέ γε
Β τινὶ τῷ Α ἀνάγκη ὑπάρχειν, εἴπερ καὶ τὸ Α
παντὶ τῷ Β ἐξ ἀνάγκης ὑπῆρχεν, ὥστε τὸ Γ ἀνάγκη
30 τινὶ τῷ Α μὴ ὑπάρχειν. ἀλλ' οὐδὲν κωλύει τὸ Α
τοιοῦτον ληφθῆναι ᾧ παντὶ τὸ Γ ἐνδέχεται ὑπ-
άρχειν.

Ἔτι κἂν ὅρους ἐκθέμενον εἴη δεῖξαι ὅτι τὸ συμ-
πέρασμα οὐκ ἔστιν ἀναγκαῖον ἁπλῶς, ἀλλὰ τούτων
ὄντων ἀναγκαῖον. οἷον ἔστω τὸ Α ζῷον, τὸ δὲ
Β ἄνθρωπος, τὸ δὲ Γ λευκόν, καὶ αἱ προτάσεις
35 ὁμοίως εἰλήφθωσαν· ἐνδέχεται γὰρ τὸ ζῷον μηδενὶ
λευκῷ ὑπάρχειν. οὐχ ὑπάρξει δὴ οὐδ' ὁ ἄνθρωπος
οὐδενὶ λευκῷ, ἀλλ' οὐκ ἐξ ἀνάγκης· ἐνδέχεται γὰρ
ἄνθρωπον γενέσθαι λευκόν, οὐ μέντοι ἕως ἂν ζῷον
μηδενὶ λευκῷ ὑπάρχῃ. ὥστε τούτων μὲν ὄντων
ἀναγκαῖον ἔσται τὸ συμπέρασμα, ἁπλῶς δ' οὐκ
ἀναγκαῖον.

31 a Ὁμοίως δ' ἕξει καὶ ἐπὶ τῶν ἐν μέρει συλλογι-

apply to any B, for we get the first figure again ; and so neither can B apply to C, for the premiss is convertible as before.

But if the affirmative premiss is apodeictic, the conclusion will not be apodeictic. (1) Let A necessarily apply to all B, and let it merely apply to no C. Then by the conversion of the negative statement we get the first figure ; and it has been proved [a] in the first figure that if the negative major premiss is not apodeictic, the conclusion will not be apodeictic either. Therefore it will not be apodeictic in the present example.

(2) Further, if the conclusion is apodeictic, it follows that C necessarily does not apply to some A. For if B necessarily applies to no C, C will also necessarily apply to no B. But B must apply to some A, that is if A *ex hypothesi* must apply to all B. Therefore C necessarily does not apply to some A. There is, however, no reason why A should not be so taken that C may possibly apply to all of it.

(3) Further, it can be shown by taking examples of terms that the conclusion is necessary, not absolutely, but given certain conditions. *E.g.*, let A be ' animal,' B ' man,' and C ' white ' ; and let the premisses be taken in the same way as before [b] ; for it is possible that ' animal ' should apply to nothing that is white. Then ' man ' too will apply to nothing that is white. But this will not be so of necessity, for a white man may come into being, but not so long as ' animal ' applies to nothing that is white. Thus given these conditions the conclusion will be necessary ; but it will not be absolutely necessary.

The same principle will obtain in the case of

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[a] 30 a 23 ff.

[b] In 30 b 20.

31 a σμῶν. ὅταν μὲν γὰρ ἡ στερητικὴ πρότασις καθόλου τ' ᾖ καὶ ἀναγκαία, καὶ τὸ συμπέρασμα ἔσται ἀναγκαῖον· ὅταν δὲ ἡ κατηγορικὴ καθόλου ἡ δὲ στερητικὴ κατὰ μέρος, οὐκ ἔσται τὸ συμπέρασμα ἀναγκαῖον. ἔστω δὴ πρῶτον ἡ στερητικὴ καθόλου τε καὶ ἀναγκαία, καὶ τὸ Α τῷ μὲν Β μηδενὶ ἐνδεχέσθω ὑπάρχειν, τῷ δὲ Γ τινὶ ὑπαρχέτω· ἐπεὶ οὖν ἀντιστρέφει τὸ στερητικόν, οὐδὲ τὸ Β τῷ Α οὐδενὶ ἐνδέχοιτ' ἂν ὑπάρχειν· τὸ δέ γε Α τινὶ τῷ Γ ὑπάρχει· ὥστ' ἐξ ἀνάγκης τινὶ τῶν Γ οὐχ ὑπάρξει[1] τὸ Β. πάλιν ἔστω ἡ κατηγορικὴ καθόλου τε καὶ ἀναγκαία, καὶ κείσθω πρὸς τῷ Β τὸ κατηγορικόν· εἰ δὴ τὸ Α παντὶ τῷ Β ἐξ ἀνάγκης ὑπάρχει τῷ δὲ Γ τινὶ μὴ ὑπάρχει, ὅτι μὲν οὐχ ὑπάρξει τὸ Β τινὶ τῷ Γ, φανερόν, ἀλλ' οὐκ ἐξ ἀνάγκης· οἱ γὰρ αὐτοὶ ὅροι ἔσονται πρὸς τὴν ἀπόδειξιν οἵπερ ἐπὶ τῶν καθόλου συλλογισμῶν.

Ἀλλ' οὐδ' εἰ τὸ στερητικὸν ἀναγκαῖόν ἐστιν ἐν μέρει ληφθέν, οὐκ ἔσται τὸ συμπέρασμα ἀναγκαῖον· διὰ γὰρ τῶν αὐτῶν ὅρων ἡ ἀπόδειξις.

XI. Ἐν δὲ τῷ τελευταίῳ σχήματι καθόλου μὲν ὄντων τῶν ὅρων πρὸς τὸ μέσον καὶ κατηγορικῶν ἀμφοτέρων τῶν προτάσεων, ἐὰν ὁποτερονοῦν ᾖ ἀναγκαῖον, καὶ τὸ συμπέρασμα ἔσται ἀναγκαῖον· ἐὰν δὲ τὸ μὲν ᾖ στερητικὸν τὸ δὲ κατηγορικόν, ὅταν μὲν τὸ στερητικὸν ἀναγκαῖον ᾖ, καὶ τὸ συμπέρασμα ἔσται ἀναγκαῖον, ὅταν δὲ τὸ κατηγορικόν, οὐκ ἔσται ἀναγκαῖον.

Ἔστωσαν γὰρ ἀμφότεραι κατηγορικαὶ πρῶτον αἱ προτάσεις, καὶ τὸ Α καὶ τὸ Β παντὶ τῷ Γ ὑπαρχέτω, ἀναγκαῖον δ' ἔστω τὸ ΑΓ. ἐπεὶ οὖν τὸ Β παντὶ

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[1] ὑπάρχει A.

particular syllogisms. When the negative premiss is universal and apodeictic, the conclusion will also be apodeictic; but when the affirmative premiss is universal and the negative particular, the conclusion will not be apodeictic. First let the negative premiss be universal and necessary, and let it be impossible for A to apply to any B, but let A apply to some C. Then since the negative premiss is convertible, it is also impossible for B to apply to any A. But A applies to some C, and so B will necessarily not apply to some C.[a] Again, let the affirmative premiss be universal and apodeictic, and let the affirmative premiss refer to B. Then if A necessarily applies to all B, and does not apply to some C, evidently B will not apply to some C; but this will not be so of necessity. The terms to demonstrate this will be the same as in the universal syllogisms.[b]

(b) Particular syllogisms.

Nor will the conclusion be apodeictic if the negative statement is apodeictic and particular. This may be demonstrated by means of the same terms.

Third figure. (a) Universal syllogisms.

XI. In the last figure, where the ⟨extreme⟩ terms are in a universal relation to the middle, and both premisses are affirmative, if either statement is apodeictic, the conclusion will also be apodeictic. If, however, one is negative and the other affirmative, when the negative is apodeictic, the conclusion will also be apodeictic[c]; but when the affirmative is apodeictic, the conclusion will not be apodeictic.

First let both premisses be affirmative, and let both A and B apply to all C, and let the premiss AC be apodeictic. Then since B applies to all C, C will also

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[a] The proof breaks down, being dependent upon the syllogism in 30 a 21-23.
[b] 30 b 33.
[c] Actually none of these conclusions can be apodeictic; *cf.* 30 a 23 note.

τῷ Γ ὑπάρχει, καὶ τὸ Γ τινὶ τῷ Β ὑπάρξει διὰ τὸ ἀντιστρέφειν τὸ καθόλου τῷ κατὰ μέρος· ὥστ᾿ εἰ παντὶ τῷ Γ τὸ Α ἐξ ἀνάγκης ὑπάρχει καὶ τὸ Γ τῷ Β τινί, καὶ τῷ Β τινὶ ἀναγκαῖον ὑπάρχειν τὸ Α· τὸ γὰρ Β ὑπὸ τὸ Γ ἔστιν. γίγνεται οὖν τὸ πρῶτον σχῆμα. ὁμοίως δὲ δειχθήσεται καὶ εἰ τὸ ΒΓ ἐστὶν ἀναγκαῖον· ἀντιστρέφει γὰρ τὸ Γ τῷ Α τινί, ὥστ᾿ εἰ παντὶ τῷ Γ τὸ Β ἐξ ἀνάγκης ὑπάρχει, καὶ τῷ Α τινὶ ὑπάρξει ἐξ ἀνάγκης.

Πάλιν ἔστω τὸ μὲν ΑΓ στερητικόν, τὸ δὲ ΒΓ καταφατικόν, ἀναγκαῖον δὲ τὸ στερητικόν. ἐπεὶ οὖν ἀντιστρέφει τινὶ τῷ Β τὸ Γ, τὸ δὲ Α οὐδενὶ τῷ Γ ἐξ ἀνάγκης, οὐδὲ τῷ Β τινὶ ὑπάρξει ἐξ ἀνάγκης τὸ Α· τὸ γὰρ Β ὑπὸ τὸ Γ ἐστίν. εἰ δὲ τὸ κατηγορικὸν ἀναγκαῖον, οὐκ ἔσται τὸ συμπέρασμα ἀναγκαῖον. ἔστω γὰρ τὸ ΒΓ κατηγορικὸν καὶ ἀναγκαῖον, τὸ δὲ ΑΓ στερητικὸν καὶ μὴ ἀναγκαῖον. ἐπεὶ οὖν ἀντιστρέφει τὸ καταφατικόν, ὑπάρξει καὶ τὸ Γ τινὶ τῷ Β ἐξ ἀνάγκης, ὥστ᾿ εἰ τὸ μὲν Α μηδενὶ τῶν Γ τὸ δὲ Γ τινὶ τῶν Β, τὸ Α τινὶ τῶν Β οὐχ ὑπάρξει· ἀλλ᾿ οὐκ ἐξ ἀνάγκης· δέδεικται γὰρ ἐν τῷ πρώτῳ σχήματι ὅτι τῆς στερητικῆς προτάσεως μὴ ἀναγκαίας οὔσης οὐδὲ τὸ συμπέρασμα ἔσται ἀναγκαῖον.

Ἔτι κἂν διὰ τῶν ὅρων εἴη φανερόν. ἔστω γὰρ τὸ μὲν Α ἀγαθόν, τὸ δ᾿ ἐφ᾿ ᾧ Β ζῷον, τὸ δὲ Γ ἵππος. τὸ μὲν οὖν ἀγαθὸν ἐνδέχεται μηδενὶ ἵππῳ ὑπάρχειν, τὸ δὲ ζῷον ἀνάγκη παντὶ ὑπάρχειν· ἀλλ᾿ οὐκ ἀνάγκη ζῷόν τι μὴ εἶναι ἀγαθόν, εἴπερ ἐνδέχεται πᾶν εἶναι ἀγαθόν. ἢ εἰ μὴ τοῦτο δυνατόν, ἀλλὰ τὸ ἐγρηγορέναι ἢ καθεύδειν ὅρον θετέον· ἅπαν γὰρ ζῷον δεκτικὸν τούτων.

apply to some B (because the universal converts with the particular); so that if A must apply to all C, and C applies to some B, A must also apply to some B; for B falls under C. Thus we get the first figure. The proof will be similar also if the premiss BC is apodeictic; for by conversion C applies to some A, so that if B necessarily applies to all C, it will also necessarily apply to some A.

Again, let AC be negative and BC affirmative, and let the negative premiss be apodeictic. Then since by conversion C applies to some B, and A necessarily applies to no C, A will also necessarily not apply to some B; for B falls under C. But if it is the affirmative premiss that is apodeictic, the conclusion will not be apodeictic. Let BC be affirmative and apodeictic, and AC be negative and assertoric. Then since the affirmative premiss is convertible, C will also necessarily apply to some B; so that if A applies to no C and C ⟨necessarily⟩ applies to some B, A will not apply to some B. But this will not be so of necessity; for it has been proved[a] in the first figure that if the negative premiss is not apodeictic neither will the conclusion be apodeictic.

Further, this fact can be clearly shown by taking examples of terms. Let A be 'good,' B 'animal,' and C 'horse.' Then 'good' may apply to no horse, but 'animal' must apply to every horse. But it is not necessary that some animal should not be good, since every animal may be good. Or if this is not possible, let the term be taken as 'waking' or 'sleeping'; for every animal is receptive of these states.

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[a] The reference is presumably to 30 a 32.

31 b Εἰ μὲν οὖν οἱ ὅροι καθόλου πρὸς τὸ μέσον εἰσίν,
εἴρηται πότε ἔσται τὸ συμπέρασμα ἀναγκαῖον· εἰ δ'
ὁ μὲν καθόλου ὁ δ' ἐν μέρει, κατηγορικῶν μὲν
ὄντων ἀμφοτέρων, ὅταν τὸ καθόλου γένηται ἀναγ-
15 καῖον, καὶ τὸ συμπέρασμα ἔσται ἀναγκαῖον. ἀπό-
δειξις δ' ἡ αὐτὴ ἣ καὶ πρότερον· ἀντιστρέφει γὰρ
καὶ τὸ ἐν μέρει κατηγορικόν. εἰ οὖν ἀνάγκη τὸ Β
παντὶ τῷ Γ ὑπάρχειν, τὸ δὲ Α ὑπὸ τὸ Γ ἐστίν,
ἀνάγκη τὸ Β τινὶ τῷ Α ὑπάρχειν· εἰ δὲ τὸ Β τῷ Α
τινί, καὶ τὸ Α τῷ Β τινὶ ὑπάρχειν ἀναγκαῖον·
20 ἀντιστρέφει γάρ. ὁμοίως δὲ καὶ εἰ τὸ ΑΓ εἴη
ἀναγκαῖον καθόλου ὄν· τὸ γὰρ Β ὑπὸ τὸ Γ ἐστίν.

Εἰ δὲ τὸ ἐν μέρει ἐστὶν ἀναγκαῖον, οὐκ ἔσται τὸ
συμπέρασμα ἀναγκαῖον. ἔστω γὰρ τὸ ΒΓ ἐν
μέρει τε καὶ ἀναγκαῖον, τὸ δὲ Α παντὶ τῷ Γ
ὑπαρχέτω, μὴ μέντοι ἐξ ἀνάγκης· ἀντιστραφέντος
οὖν τοῦ ΒΓ τὸ πρῶτον γίγνεται σχῆμα, καὶ ἡ μὲν
25 καθόλου πρότασις οὐκ ἀναγκαία, ἡ δ' ἐν μέρει
ἀναγκαία. ὅτε δ' οὕτως ἔχοιεν αἱ προτάσεις, οὐκ
ἦν τὸ συμπέρασμα ἀναγκαῖον· ὥστ' οὐδ' ἐπὶ τού-
των. ἔτι δὲ καὶ ἐκ τῶν ὅρων φανερόν. ἔστω γὰρ
τὸ μὲν Α ἐγρήγορσις, τὸ δὲ Β δίπουν, ἐφ' ᾧ
δὲ τὸ Γ ζῷον· τὸ μὲν οὖν Β τινὶ τῷ Γ ἀνάγ-
30 κη ὑπάρχειν, τὸ δὲ Α τῷ Γ ἐνδέχεται, καὶ τὸ Α
τῷ Β οὐκ ἀναγκαῖον· οὐ γὰρ ἀνάγκη δίπουν τι
καθεύδειν ἢ ἐγρηγορέναι. ὁμοίως δὲ καὶ διὰ τῶν
αὐτῶν ὅρων δειχθήσεται καὶ εἰ τὸ ΑΓ εἴη ἐν μέρει
τε καὶ ἀναγκαῖον.

Εἰ δ' ὁ μὲν κατηγορικὸς ὁ δὲ στερητικὸς τῶν

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[a] 31 a 24 ff.; it is of course equally invalid.

[b] *i.e.* C applies to all A: which by conversion gives the relation 'A applies to some C.'

(b) Particular syllogisms.

Thus we have stated in what circumstances the conclusion will be apodeictic if the extreme terms are in a universal relation to the middle. But if one term is in a universal and the other in a particular relation, both premisses being affirmative, when the universal relation is apodeictic, the conclusion will also be apodeictic. The proof is the same as before [a]; for the affirmative particular premiss is also convertible. Thus if B must apply to all C, and A falls under C,[b] B must apply to some A. And if B must apply to some A, A must also apply to some B; for the premiss is convertible. Similarly too supposing that the premiss AC is apodeictic and universal; for B falls under C.[c]

If, however, it is the particular premiss that is apodeictic, the conclusion will not be apodeictic. Let BC be particular and apodeictic, and let A apply to all C, but not of necessity. Then by the conversion of BC we get the first figure, and the universal premiss is not apodeictic, but the particular is. Now we saw [d] that whenever the premisses are thus related the conclusion is not apodeictic; and so neither will it be so in the present case. Further, this fact can be clearly shown by taking examples of terms. Let A be 'waking,' and B 'biped,' and C 'animal.' Then B must apply to some C, and A may apply to C, but A does not necessarily apply to B; for it is not necessary that a particular biped should be asleep or awake. The proof can be effected similarly by means of the same terms supposing AC to be particular and apodeictic.

If, however, one of the terms is positive and the

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[c] *Cf.* previous note.
[d] 30 a 35, b 1 ff.

31 b ὅρων, ὅταν μὲν ᾖ τὸ καθόλου στερητικόν τε καὶ
35 ἀναγκαῖον, καὶ τὸ συμπέρασμα ἔσται ἀναγκαῖον·
εἰ γὰρ τὸ Α τῷ Γ μηδενὶ ἐνδέχεται, τὸ δὲ Β τινὶ
τῷ Γ ὑπάρχει, τὸ Α τινὶ τῷ Β ἀνάγκη μὴ ὑπάρχειν.
ὅταν δὲ τὸ καταφατικὸν ἀναγκαῖον τεθῇ, ἢ καθόλου
ὂν ἢ ἐν μέρει, ἢ τὸ στερητικὸν κατὰ μέρος, οὐκ
ἔσται τὸ συμπέρασμα ἀναγκαῖον. τὰ μὲν γὰρ ἄλλα
40 ταὐτὰ ἃ καὶ ἐπὶ τῶν προτέρων ἐροῦμεν, ὅροι δ'
ὅταν μὲν ᾖ τὸ καθόλου κατηγορικὸν ἀναγκαῖον,
32 a ἐγρήγορσις—ζῷον—ἄνθρωπος, μέσον ἄνθρωπος,
ὅταν δ' ἐν μέρει τὸ κατηγορικὸν ἀναγκαῖον, ἐγρήγορσις—ζῷον—λευκόν (ζῷον μὲν γὰρ ἀνάγκη τινὶ
λευκῷ ὑπάρχειν, ἐγρήγορσις δ' ἐνδέχεται μηδενί,
καὶ οὐκ ἀνάγκη τινὶ ζῴῳ μὴ ὑπάρχειν ἐγρήγορσιν),
5 ὅταν δὲ τὸ στερητικὸν ἐν μέρει ὂν ἀναγκαῖον ᾖ,
δίπουν—κινούμενον—ζῷον, ζῷον μέσον.[1]

XII. Φανερὸν οὖν ὅτι τοῦ μὲν ὑπάρχειν οὐκ ἔστι
συλλογισμὸς ἐὰν μὴ ἀμφότεραι ὦσιν αἱ προτάσεις
ἐν τῷ ὑπάρχειν, τοῦ δ' ἀναγκαίου ἔστι καὶ τῆς
ἑτέρας μόνον ἀναγκαίας οὔσης. ἐν ἀμφοτέροις δέ,
10 καὶ καταφατικῶν καὶ στερητικῶν ὄντων τῶν συλλογισμῶν, ἀνάγκη τὴν ἑτέραν πρότασιν ὁμοίαν
εἶναι τῷ συμπεράσματι (λέγω δὲ τὸ ὁμοίαν, εἰ μὲν
ὑπάρχον, ὑπάρχουσαν, εἰ δ' ἀναγκαῖον, ἀναγκαίαν)·
ὥστε καὶ τοῦτο δῆλον, ὅτι οὐκ ἔσται τὸ συμπέρασμα οὔτ' ἀναγκαῖον οὔθ' ὑπάρχον εἶναι μὴ
ληφθείσης ἀναγκαίας ἢ ὑπαρχούσης προτάσεως.

15 Περὶ μὲν οὖν τοῦ ἀναγκαίου, πῶς γίγνεται καὶ

[1] ζῷον μέσον d², Waitz, ita (sed ζῷον in litura) B: δίπουν, μέσον ζῷον Ad¹: δίπουν μέσον n: μέσον ζῷον C, Bekker: om. u.

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[a] *Cf.* 31 a 37 ff., b 20 ff.

other negative, when the universal premiss is negative and apodeictic, the conclusion will also be apodeictic; for if it is impossible for A to apply to any C, and B applies to some C, A necessarily does not apply to some B. But when the affirmative premiss, whether universal or particular, or the negative particular premiss, is apodeictic, the conclusion will not be apodeictic. The rest of the proof will be the same as before,[a] and the terms will be (1) when the universal affirmative premiss is apodeictic, waking—animal—man (man being the middle term); (2) when the affirmative apodeictic premiss is particular, waking—animal—white (for ' animal ' must apply to something white, but ' waking ' may apply to nothing white, and it is not necessary that ' waking ' should not apply to some particular animal); (3) when the negative particular premiss is apodeictic, biped—moving—animal (animal being the middle term).

XII. It is evident, then, that whereas there is no assertoric syllogism unless both premisses are in the assertoric mode, there is an apodeictic syllogism even if only one of the premisses is apodeictic.[b] But in both cases, whether the syllogisms are affirmative or negative, one of the premisses must be similar to the conclusion. By ' similar ' I mean that if the conclusion is assertoric the premiss must be assertoric, and if the conclusion is apodeictic the premiss must be apodeictic. Hence this also is clear: that it will not be possible for the conclusion to be either apodeictic or assertoric unless a premiss is taken as apodeictic or assertoric.

Deductions from the foregoing analysis.

With regard, then, to the apodeictic mode of syllogism, how it is obtained and in what respect it

Problematic syllogisms.

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[b] On this fallacy see 30 a 23 note.

32 a τίνα διαφορὰν ἔχει πρὸς τὸ ὑπάρχον, εἴρηται σχεδὸν ἱκανῶς. XIII. περὶ δὲ τοῦ ἐνδεχομένου μετὰ ταῦτα λέγομεν πότε καὶ πῶς καὶ διὰ τίνων ἔσται συλλογισμός. λέγω δ' ἐνδέχεσθαι καὶ τὸ ἐνδεχόμενον, οὗ μὴ ὄντος ἀναγκαίου τεθέντος δ' 20 ὑπάρχειν, οὐδὲν ἔσται διὰ τοῦτ' ἀδύνατον (τὸ γὰρ ἀναγκαῖον ὁμωνύμως ἐνδέχεσθαι λέγομεν). ὅτι δὲ τοῦτ' ἐστὶ τὸ ἐνδεχόμενον, φανερὸν ἔκ τε τῶν ἀποφάσεων καὶ τῶν καταφάσεων τῶν ἀντικειμένων· τὸ γὰρ οὐκ ἐνδέχεται ὑπάρχειν καὶ ἀδύνατον ὑπάρχειν καὶ ἀνάγκη μὴ ὑπάρχειν ἤτοι ταὐτά ἐστιν 25 ἢ ἀκολουθεῖ ἀλλήλοις, ὥστε καὶ τὰ ἀντικείμενα τούτοις, τὸ ἐνδέχεται ὑπάρχειν καὶ οὐκ ἀδύνατον ὑπάρχειν καὶ οὐκ ἀνάγκη μὴ ὑπάρχειν, ἤτοι ταὐτὰ ἔσται ἢ ἀκολουθοῦντα ἀλλήλοις· κατὰ παντὸς γὰρ ἡ φάσις[1] ἢ ἡ ἀπόφασίς ἐστιν. ἔσται ἄρα τὸ ἐνδεχόμενον οὐκ ἀναγκαῖον καὶ τὸ μὴ ἀναγκαῖον ἐνδεχόμενον.

30 Συμβαίνει δὲ πάσας τὰς κατὰ τὸ ἐνδέχεσθαι προτάσεις ἀντιστρέφειν ἀλλήλαις. λέγω δὲ οὐ τὰς καταφατικὰς ταῖς ἀποφατικαῖς, ἀλλ' ὅσαι καταφατικὸν ἔχουσι τὸ σχῆμα κατὰ τὴν ἀντίθεσιν, οἷον τὸ ἐνδέχεσθαι ὑπάρχειν τῷ ἐνδέχεσθαι μὴ ὑπάρχειν, καὶ τὸ παντὶ ἐνδέχεσθαι τῷ ἐνδέχεσθαι μηδενὶ καὶ 35 μὴ παντί, καὶ τὸ τινὶ τῷ μὴ τινί· τὸν αὐτὸν δὲ τρόπον καὶ ἐπὶ τῶν ἄλλων. ἐπεὶ γὰρ τὸ ἐνδεχό-

[1] φάσις AB: κατάφασις.

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[a] *Cf.* 25 a 37.

[b] This is not proved by the preceding argument. It is indeed implied there that unless ἀναγκαῖον ὑπάρχειν = οὐκ ἀναγκαῖον μὴ ὑπάρχειν it cannot be equivalent to ἐνδεχόμενον ὑπάρχειν. But one would expect explicit proof of so important a point, and I am therefore disposed to agree with Becker

differs from the assertoric, we have given, broadly speaking, a sufficient account. XIII. Next we shall state with regard to the possible, when and in what sense and by what means we shall get a syllogism. I call a thing possible if when, not being necessary, it is assumed to be true, no impossibility will thereby be involved. (⟨I say ' not being necessary '⟩ because we apply the term ' possible ' equivocally to that which is necessary.[a]) That this is the meaning of the expression ' to be possible ' is evident if we consider the contradictory negations and affirmations. For ' it is not possible that it should apply ' and ' it cannot apply ' and ' it is necessary that it should not apply ' are either the same or imply one another ; and so their contradictories, ' it is possible that it should apply ' and ' it can apply ' and ' it is not necessary that it should not apply ' are either the same or imply one another ; for either the assertion or the negation is predicated of every subject. That which is possible, then, will not be necessary ; and that which is not necessary will be possible.[b]

It follows that all problematic premisses are convertible with one another. I mean, not that the affirmative are convertible with the negative, but that all which have an affirmative form are convertible with their opposites : *e.g.*, ' to be possible to apply ' with ' to be possible not to apply ' and ' to be possible to apply to all ' with ' to be possible to apply to none ' or ' not to apply to all ' ; and ' to be possible to apply to some ' with ' to be possible not to apply to some ' ; and similarly in the remaining cases. For

(*A.T.M.* 11-13) that the ' argument ' is the addition of a well-meaning pupil. Maier (*Syllogistik des Aristoteles*, II. i. 139-140) seems to evade the difficulty.

μενον οὐκ ἔστιν ἀναγκαῖον, τὸ δὲ μὴ ἀναγκαῖον ἐγχωρεῖ μὴ ὑπάρχειν, φανερὸν ὅτι εἰ ἐνδέχεται τὸ Α τῷ Β ὑπάρχειν, ἐνδέχεται καὶ μὴ ὑπάρχειν· καὶ εἰ παντὶ ἐνδέχεται ὑπάρχειν, καὶ παντὶ ἐνδέχεται μὴ ὑπάρχειν. ὁμοίως δὲ κἀπὶ τῶν ἐν μέρει καταφάσεων· ἡ γὰρ αὐτὴ ἀπόδειξις. εἰσὶ δ' αἱ τοιαῦται προτάσεις κατηγορικαὶ καὶ οὐ στερητικαί· τὸ γὰρ ἐνδέχεσθαι τῷ εἶναι ὁμοίως τάττεται, καθάπερ ἐλέχθη πρότερον.

Διωρισμένων δὲ τούτων πάλιν λέγομεν ὅτι τὸ ἐνδέχεσθαι κατὰ δύο λέγεται τρόπους, ἕνα μὲν τὸ ὡς ἐπὶ τὸ πολὺ γίγνεσθαι καὶ διαλείπειν τὸ ἀναγκαῖον, οἷον τὸ πολιοῦσθαι ἄνθρωπον ἢ τὸ αὐξάνεσθαι ἢ φθίνειν, ἢ ὅλως τὸ πεφυκὸς ὑπάρχειν (τοῦτο γὰρ οὐ συνεχὲς μὲν ἔχει τὸ ἀναγκαῖον διὰ τὸ μὴ ἀεὶ εἶναι ἄνθρωπον, ὄντος μέντοι ἀνθρώπου ἢ ἐξ ἀνάγκης ἢ ὡς ἐπὶ τὸ πολύ ἐστιν), ἄλλον δὲ τὸ ἀόριστον, ὃ καὶ οὕτως καὶ μὴ οὕτως δυνατόν, οἷον τὸ βαδίζειν ζῷον ἢ τὸ βαδίζοντος γενέσθαι σεισμόν, ἢ ὅλως τὸ ἀπὸ τύχης γιγνόμενον· οὐδὲν γὰρ μᾶλλον οὕτως πέφυκεν ἢ ἐναντίως. ἀντιστρέφει μὲν οὖν καὶ κατὰ τὰς ἀντικειμένας προτάσεις ἑκάτερον τῶν ἐνδεχομένων, οὐ μὴν τὸν αὐτόν γε τρόπον, ἀλλὰ τὸ μὲν πεφυκὸς εἶναι τῷ μὴ ἐξ ἀνάγκης ὑπάρχειν (οὕτω γὰρ ἐνδέχεται μὴ πολιοῦσθαι ἄνθρωπον), τὸ δ' ἀόριστον τῷ μηδὲν μᾶλλον οὕτως ἢ ἐκείνως.

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[a] 25 b 21.

[b] The distinction is not clearly expressed, and has nothing to do with necessity. In the former sense the possible is probable but not necessary, and its opposite is therefore improbable but not impossible. In the latter sense the possible is neither necessary nor more probable than its opposite. See Introd. p. 191.

since the possible is not necessary, and that which is not necessary may not apply, it is evident that if it is possible for A to apply to B, it is also possible for it not to apply; and if it is possible for it to apply to all B, it is also possible for it not to apply to all. Similarly too in the case of particular affirmations; for the same proof obtains. Such premisses are affirmative, not negative; for the senses of 'to be possible' correspond to those of 'to be,' as has been already stated.[a]

Two senses of the possible: (1) That which happens usually but not necessarily;

Having made these distinctions clear, we may further remark that the expression 'to be possible' is used in two senses: (1) to describe what generally happens but falls short of being necessary, *e.g.*, a man's becoming grey-haired or growing or wasting away, or in general that which is naturally applicable to a subject (for such an attribute has no continuous necessity, because a man does not always exist; but so long as a man exists the attribute applies to him either of necessity or as a general rule); and (2) to describe the indeterminate, which is capable of happening both in a given way and otherwise: *e.g.*, the walking of an animal, or the happening of an earthquake while it is walking, or in general a chance occurrence; for it is no more natural that such a thing should happen in one way than in the opposite way. The possible in each of these two senses, then, is convertible with its opposite premiss; not, however, in the same way. That which is naturally so converts because it does not necessarily apply (for it is in this sense that it is possible for a man not to become grey-haired); but the indeterminate converts because it happens no more in one way than in another.[b]

(2) That which happens or does not happen indifferently.

Ἐπιστήμη δὲ καὶ συλλογισμὸς ἀποδεικτικὸς τῶν μὲν ἀορίστων οὐκ ἔστι διὰ τὸ ἄτακτον εἶναι τὸ μέσον, τῶν δὲ πεφυκότων ἔστι, καὶ σχεδὸν οἱ λόγοι καὶ αἱ σκέψεις γίγνονται περὶ τῶν οὕτως ἐνδεχομένων· ἐκείνων δ' ἐγχωρεῖ μὲν γενέσθαι συλλογισμόν, οὐ μὴν εἴωθέ γε ζητεῖσθαι.

Ταῦτα μὲν οὖν διορισθήσεται μᾶλλον ἐν τοῖς ἑπομένοις· νῦν δὲ λέγομεν πότε καὶ τίς ἔσται συλλογισμὸς ἐκ τῶν ἐνδεχομένων προτάσεων.

Ἐπεὶ δὲ τὸ ἐνδέχεσθαι τόδε τῷδε ὑπάρχειν διχῶς ἔστιν ἐκλαβεῖν· ἢ γὰρ ᾧ ὑπάρχει τόδε ἢ ᾧ ἐνδέχεται αὐτὸ ὑπάρχειν (τὸ γὰρ καθ' οὗ τὸ Β τὸ Α ἐνδέχεσθαι τούτων σημαίνει θάτερον, ἢ καθ' οὗ λέγεται τὸ Β ἢ καθ' οὗ ἐνδέχεται λέγεσθαι, τὸ δὲ καθ' οὗ τὸ Β τὸ Α ἐνδέχεσθαι ἢ παντὶ τῷ Β τὸ Α ἐγχωρεῖν οὐδὲν διαφέρει)· φανερὸν ὅτι διχῶς ἂν λέγοιτο τὸ Α τῷ Β παντὶ ἐνδέχεσθαι ὑπάρχειν. πρῶτον οὖν εἴπωμεν, εἰ καθ' οὗ τὸ Γ τὸ Β ἐνδέχεται, καὶ καθ' οὗ τὸ Β τὸ Α, τίς ἔσται καὶ ποῖος συλλογισμός· οὕτω γὰρ αἱ προτάσεις ἀμφότεραι λαμβάνονται κατὰ τὸ ἐνδέχεσθαι, ὅταν δὲ

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[a] The middle term is here treated as proximate cause; *cf. An. Post.* I. 78 b 4, II. ii., 93 a 3 ff. For the general sense *cf. Met.* VI. (E), ii., XI. (K), viii., *An. Post.* I. xxx.

[b] There is no obvious fulfilment of this promise. Jenkinson refers to *An. Post.* I. viii.

There is no scientific knowledge or demonstrative syllogism of indeterminate propositions, because the middle term [a] is not established; but there are both in the case of propositions which are naturally applicable, and, speaking broadly, it is with propositions which are possible in this sense that all discussions and inquiries are concerned. There can be a syllogism of those which are possible in the other sense, but it is not usually required.

These distinctions shall receive fuller treatment later.[b] Our present concern is to state in what circumstances a syllogism can be drawn from problematic premisses, and what the nature of the syllogism will be.

Two senses of the statement 'A may apply to all B.'

Since the statement that it is possible for one term to apply to another can be taken in two different senses, viz., either that it may apply to a subject to which the other term applies, or that it may apply to a subject to which the other term may apply (for the statement that A may be predicated of that of which B is predicated means one of two things: either that it may be predicated of the subject of which B is predicated, or that it may be predicated of the subject of which B may be predicated; and the statement that A may be predicated of the subject of which B is predicated differs in no way from the statement that A may apply to all B); it is evident that there are two senses in which it can be said that A may apply to all B. First, then, let us state what and of what kind the syllogism will be if B may be predicated of the subject of which C may be predicated, and A may be predicated of the subject of which B may be predicated, for in this type both premisses are problematic; but when A may be

32 b καθ' οὗ τὸ Β ὑπάρχει τὸ Α ἐνδέχηται, ἡ μὲν ὑπάρχουσα ἡ δ' ἐνδεχομένη· ὥστ' ἀπὸ τῶν ὁμοιοσχημόνων[1] ἀρκτέον, καθάπερ καὶ ἐν τοῖς ἄλλοις.

XIV. Ὅταν οὖν τὸ Α παντὶ τῷ Β ἐνδέχηται καὶ τὸ Β παντὶ τῷ Γ, συλλογισμὸς ἔσται τέλειος ὅτι
40 τὸ Α παντὶ τῷ Γ ἐνδέχεται ὑπάρχειν. τοῦτο δὲ
33 a φανερὸν ἐκ τοῦ ὁρισμοῦ· τὸ γὰρ ἐνδέχεσθαι παντὶ ὑπάρχειν οὕτως ἐλέγομεν. ὁμοίως δὲ καὶ εἰ τὸ μὲν Α ἐνδέχεται μηδενὶ τῷ Β τὸ δὲ Β παντὶ τῷ Γ, ὅτι τὸ Α ἐνδέχεται μηδενὶ τῷ Γ· τὸ γὰρ καθ' οὗ τὸ Β ἐνδέχεται τὸ Α μὴ ἐνδέχεσθαι τοῦτ' ἦν, τὸ μηδὲν
5 ἀπολείπειν τῶν ὑπὸ τὸ Β ἐνδεχομένων.

Ὅταν δὲ τὸ Α παντὶ τῷ Β ἐνδέχηται τὸ δὲ Β ἐνδέχηται μηδενὶ τῷ Γ, διὰ μὲν τῶν εἰλημμένων προτάσεων οὐδεὶς γίγνεται συλλογισμός, ἀντιστραφείσης δὲ τῆς ΒΓ κατὰ τὸ ἐνδέχεσθαι γίγνεται ὁ αὐτὸς ὅσπερ πρότερον. ἐπεὶ γὰρ ἐνδέχεται
10 τὸ Β μηδενὶ τῷ Γ ὑπάρχειν, ἐνδέχεται καὶ παντὶ ὑπάρχειν (τοῦτο δ' εἴρηται πρότερον), ὥστ' εἰ τὸ μὲν Β παντὶ τῷ Γ τὸ δ' Α παντὶ τῷ Β, πάλιν ὁ αὐτὸς γίγνεται συλλογισμός. ὁμοίως δὲ καὶ εἰ πρὸς ἀμφοτέρας τὰς προτάσεις ἡ ἀπόφασις τεθείη μετὰ τοῦ ἐνδέχεσθαι· λέγω δ' οἷον εἰ τὸ Α ἐνδέχεται
15 μηδενὶ τῶν Β καὶ τὸ Β μηδενὶ τῶν Γ· διὰ μὲν γὰρ τῶν εἰλημμένων προτάσεων οὐδεὶς γίγνεται συλλογισμός, ἀντιστρεφομένων δὲ πάλιν ὁ αὐτὸς ἔσται ὡς καὶ πρότερον. φανερὸν οὖν ὅτι τῆς ἀποφάσεως τιθεμένης πρὸς τὸ ἔλαττον ἄκρον ἢ πρὸς ἀμφοτέρας τὰς προτάσεις ἢ οὐ γίγνεται συλλογισμὸς ἢ γίγνεται
20 μὲν ἀλλ' οὐ τέλειος· ἐκ γὰρ τῆς ἀντιστροφῆς γίγνεται τὸ ἀναγκαῖον.

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[1] ὁμοιοσχήμων A^1.

predicated of the subject of which B is predicated, one premiss is problematic and the other assertoric. Let us, then, begin with the type whose premisses are similar in quality, as in the other examples.

XIV. When A may apply to all B, and B to all C, there will be a perfect syllogism to the effect that A may apply to all C. This is evident from the definition; for we said [a] that 'to be possible to apply to all' has this meaning. Similarly also if A may apply to no B, and B may apply to all C, there will be a syllogism to the effect that A may apply to no C; for we saw [b] that the proposition that A may not be predicated of the subject of which B may be predicated means that none of the possibilities which fall under the term B is wanting.

First figure. (1) Both premisses problematic. (*a*) Universal syllogisms.

When, however, A may apply to all B and B may apply to no C, we get no syllogism by means of the premisses so taken; but when the premiss BC is converted in respect of possibility, we get the same syllogism as before.[c] For since B may apply to no C, it may also apply to all C (this has been stated above); and so if B may apply to all C and A may apply to all B, we get the same syllogism again. Similarly also supposing the negative sense to refer to both premisses in conjunction with the sense of possibility. I mean, *e.g.*, if A may apply to no B, and B to no C; for we get no syllogism by means of the premisses so taken, but on their conversion we shall have once again the same syllogism as before. Thus it is evident that if the negative refers to the minor term or to both the premisses we either get no syllogism, or get a syllogism which is not perfect; for the necessary conclusion depends upon the conversion.

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[a] 32 b 25 ff.

[b] 32 b 38-40.

[c] 32 a 29 ff.

Ἐὰν δ' ἡ μὲν καθόλου τῶν προτάσεων ἡ δ' ἐν μέρει ληφθῇ, πρὸς μὲν τὸ μεῖζον ἄκρον κειμένης τῆς καθόλου συλλογισμὸς ἔσται τέλειος. εἰ γὰρ τὸ Α παντὶ τῷ Β ἐνδέχεται τὸ δὲ Β τινὶ τῷ Γ, τὸ Α τινὶ τῷ Γ ἐνδέχεται· τοῦτο δὲ φανερὸν ἐκ τοῦ ὁρισμοῦ τοῦ ἐνδέχεσθαι παντί.[1] πάλιν εἰ τὸ Α ἐνδέχεται μηδενὶ τῷ Β τὸ δὲ Β τινὶ τῶν Γ ἐνδέχεται ὑπάρχειν, ἀνάγκη τὸ Α ἐνδέχεσθαί τινι τῶν Γ μὴ ὑπάρχειν· ἀπόδειξις δ' ἡ αὐτή. ἐὰν δὲ στερητικὴ ληφθῇ ἡ ἐν μέρει πρότασις ἡ δὲ καθόλου καταφατική, τῇ δὲ θέσει ὁμοίως ἔχωσιν—οἷον τὸ μὲν Α παντὶ τῷ Β ἐνδέχεται τὸ δὲ Β τινὶ τῷ Γ ἐνδέχεται μὴ ὑπάρχειν—διὰ μὲν τῶν εἰλημμένων προτάσεων οὐ γίγνεται φανερὸς συλλογισμός, ἀντιστραφείσης δὲ τῆς ἐν μέρει καὶ τεθέντος τοῦ Β τινὶ τῷ Γ ἐνδέχεσθαι ὑπάρχειν τὸ αὐτὸ ἔσται συμπέρασμα ὃ καὶ πρότερον, καθάπερ ἐν τοῖς ἐξ ἀρχῆς.

Ἐὰν δ' ἡ πρὸς τὸ μεῖζον ἄκρον ἐν μέρει ληφθῇ ἡ δὲ πρὸς τὸ ἔλαττον καθόλου, ἐάν τ' ἀμφότεραι καταφατικαὶ τεθῶσιν ἐάν τε στερητικαὶ ἐάν τε μὴ ὁμοιοσχήμονες ἐάν τ' ἀμφότεραι ἀδιόριστοι ἢ κατὰ μέρος, οὐδαμῶς ἔσται συλλογισμός· οὐδὲν γὰρ κωλύει τὸ Β ὑπερτείνειν τοῦ Α καὶ μὴ κατηγορεῖσθαι ἐπ' ἴσων· ᾧ δ' ὑπερτείνει τὸ Β τοῦ Α, εἰλήφθω τὸ Γ· τούτῳ γὰρ οὔτε παντὶ οὔτε μηδενὶ οὔτε τινὶ οὔτε μή τινι ἐνδέχεται τὸ Α ὑπάρχειν, εἴπερ ἀντιστρέφουσιν αἱ κατὰ τὸ ἐνδέχεσθαι προτάσεις καὶ τὸ Β πλείοσιν ἐνδέχεται ἢ τὸ Α ὑπάρχειν. ἔτι δὲ καὶ ἐκ τῶν ὅρων φανερόν· οὕτω γὰρ ἐχουσῶν

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[1] παντί (deleto, quod cet. omnes fere habent codd., αβγ) B: om. Bekker.

(b) Particular syllogisms.

If one of the premisses is taken as universal and the other as particular, when the major premiss is universal there will be a perfect syllogism. For if A may apply to all B, and B to some C, A may apply to some C. This is evident from the definition of 'to be possible to apply to all.'[a] Again, if A may apply to no B, and B may apply to some C, it necessarily follows that A may not apply to some C. The proof is the same as before. But if the particular premiss is negative and the universal affirmative, the premisses being in the same relation as before—*i.e.*, if A may apply to all B, and B may not apply to some C—, we get no obvious syllogism by means of the premisses so taken, but when the particular premiss is converted, *i.e.*, when B is taken as possibly applying to some C, we shall have the same conclusion as before,[b] just as in the first examples.[c]

If the major premiss is particular and the minor universal, whether they are both taken as affirmative, or both as negative, or as dissimilar in form; or if both are taken as indefinite or particular; in none of these cases will there be a syllogism. For there is nothing to prevent the term B from having a wider extension than the term A, and not being coterminous with it in predication. Let C represent the difference in extension between B and A. ⟨Then there will be no syllogism,⟩ for it is not possible that A should either apply to all or apply to none or apply to some or not apply to some of C; that is, if the problematic premisses are convertible and B may apply to more subjects than those to which A may apply. Further, this fact can be clearly shown by taking examples of terms; for the premisses are related in this way both

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[a] 32 b 25 ff.

[b] l. 24.

[c] 32 b 5-17.

τῶν προτάσεων τὸ πρῶτον τῷ ἐσχάτῳ καὶ οὐδενὶ ἐνδέχεται καὶ παντὶ ὑπάρχειν ἀναγκαῖον. ὅροι δὲ κοινοὶ πάντων τοῦ μὲν ὑπάρχειν ἐξ ἀνάγκης ζῷον—λευκόν—ἄνθρωπος, τοῦ δὲ μὴ ἐνδέχεσθαι ζῷον—λευκόν—ἱμάτιον.

Φανερὸν οὖν τοῦτον τὸν τρόπον ἐχόντων τῶν ὅρων ὅτι οὐδεὶς γίγνεται συλλογισμός· ἢ γὰρ τοῦ ὑπάρχειν ἢ τοῦ ἐξ ἀνάγκης ἢ τοῦ ἐνδέχεσθαι πᾶς ἐστι συλλογισμός. τοῦ μὲν οὖν ὑπάρχειν καὶ τοῦ ἀναγκαίου φανερὸν ὅτι οὐκ ἔστιν, ὁ μὲν γὰρ καταφατικὸς ἀναιρεῖται τῷ στερητικῷ, ὁ δὲ στερητικὸς τῷ καταφατικῷ· λείπεται δὴ τοῦ ἐνδέχεσθαι εἶναι· τοῦτο δ' ἀδύνατον· δέδεικται γὰρ ὅτι οὕτως ἐχόντων τῶν ὅρων καὶ παντὶ τῷ ἐσχάτῳ τὸ πρῶτον ἀνάγκη καὶ οὐδενὶ ἐνδέχεται ὑπάρχειν· ὥστ' οὐκ ἂν εἴη τοῦ ἐνδέχεσθαι συλλογισμός· τὸ γὰρ ἀναγκαῖον οὐκ ἦν ἐνδεχόμενον.

Φανερὸν δὲ ὅτι καθόλου τῶν ὅρων ὄντων ἐν ταῖς ἐνδεχομέναις προτάσεσιν ἀεὶ γίγνεται συλλογισμὸς ἐν τῷ πρώτῳ σχήματι, καὶ κατηγορικῶν καὶ στερητικῶν ὄντων, πλὴν κατηγορικῶν μὲν τέλειος, στερητικῶν δὲ ἀτελής.

Δεῖ δὲ τὸ ἐνδέχεσθαι λαμβάνειν μὴ ἐν τοῖς ἀναγκαίοις, ἀλλὰ κατὰ τὸν εἰρημένον διορισμόν· ἐνίοτε δὲ λανθάνει τὸ τοιοῦτον.

XV. Ἐὰν δ' ἡ μὲν ὑπάρχειν ἡ δ' ἐνδέχεσθαι λαμβάνηται τῶν προτάσεων, ὅταν μὲν ἡ πρὸς τὸ μεῖζον ἄκρον ἐνδέχεσθαι σημαίνῃ, τέλειοί τ' ἔσονται πάντες οἱ συλλογισμοὶ καὶ τοῦ ἐνδέχεσθαι κατὰ τὸν εἰρημένον διορισμόν, ὅταν δ' ἡ πρὸς τὸ

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[a] Since the premisses give contradictory conclusions, no inference of fact or necessity can be drawn from them.

when the first term cannot apply to any and when it must apply to all of the last. Examples of terms common to all cases where the first term must apply to the last are animal—white—man ; where it cannot apply, animal—white—cloak.

Thus it is evident that when the terms are related in this way we get no syllogism ; for every syllogism is either assertoric or apodeictic or problematic. Now evidently there is no assertoric or apodeictic syllogism in this case ; for the affirmative is invalidated by the negative conclusion, and the negative by the affirmative.[a] The remaining alternative, then, is that the syllogism should be problematic. But this is impossible ; for it has been shown that the terms are related in this way both when the first must apply to all, and when it can apply to none, of the last. Thus there cannot be a problematic syllogism ; for we have seen [b] that that which is necessary is not possible.

It is also evident that when the terms in problematic premisses are universal, we always get a syllogism in the first figure, whether the terms are both positive or both negative ; with the difference, however, that when they are positive the syllogism is perfect, and when they are negative it is imperfect.

The term 'possible' must be understood, not with reference to that which is necessary, but in accordance with the definition already given.[c] Points of this kind are sometimes overlooked.

B. One assertoric and one problematic premiss. (1) Both premisses universal.

XV. If one of the premisses is assertoric and the other problematic, when it is the major premiss that expresses possibility, all the syllogisms will be perfect and will be of the 'possible' type in accordance with the definition of possibility given above [d] ; but

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[b] 32 a 28.

[c] 32 a 18.

[d] 32 a 18.

33 b ἔλαττον, ἀτελεῖς τε πάντες, καὶ οἱ στερητικοὶ τῶν 30 συλλογισμῶν οὐ τοῦ κατὰ τὸν διορισμὸν ἐνδεχομένου, ἀλλὰ τοῦ μηδενὶ ἢ μὴ παντὶ ἐξ ἀνάγκης ὑπάρχειν· εἰ γὰρ μηδενὶ ἢ μὴ παντὶ ἐξ ἀνάγκης, ἐνδέχεσθαί φαμεν καὶ μηδενὶ καὶ μὴ παντὶ ὑπάρχειν.

Ἐνδεχέσθω γὰρ τὸ Α παντὶ τῷ Β, τὸ δὲ Β παντὶ τῷ Γ κείσθω ὑπάρχειν· ἐπεὶ οὖν ὑπὸ τὸ Β 35 ἐστὶ τὸ Γ τῷ δὲ Β παντὶ ἐνδέχεται τὸ Α, φανερὸν ὅτι καὶ τῷ Γ παντὶ ἐνδέχεται. γίγνεται δὴ τέλειος συλλογισμός. ὁμοίως δὲ καὶ στερητικῆς οὔσης τῆς ΑΒ προτάσεως τῆς δὲ ΒΓ καταφατικῆς, καὶ τῆς μὲν ἐνδέχεσθαι τῆς δὲ ὑπάρχειν λαμβανούσης, τέλειος συλλογισμὸς ὅτι τὸ Α ἐνδέχεται 40 μηδενὶ τῷ Γ ὑπάρχειν.

34 a Ὅτι μὲν οὖν τοῦ ὑπάρχειν τιθεμένου πρὸς τὸ ἔλαττον ἄκρον τέλειοι γίγνονται συλλογισμοί, φανερόν· ὅτι δ' ἐναντίως ἔχοντος ἔσονται συλλογισμοὶ διὰ τοῦ ἀδυνάτου δεικτέον· ἅμα δ' ἔσται δῆλον καὶ ὅτι ἀτελεῖς· ἡ γὰρ δεῖξις οὐκ ἐκ τῶν 5 εἰλημμένων προτάσεων.

Πρῶτον δὲ λεκτέον ὅτι εἰ τοῦ Α ὄντος ἀνάγκη τὸ Β εἶναι, καὶ δυνατοῦ ὄντος τοῦ Α δυνατὸν ἔσται τὸ Β ἐξ ἀνάγκης. ἔστω γὰρ οὕτως ἐχόντων τὸ μὲν ἐφ' ᾧ τὸ Α δυνατόν, τὸ δ' ἐφ' ᾧ τὸ Β ἀδύνατον. εἰ οὖν τὸ μὲν δυνατόν, ὅτε δυνατὸν εἶναι, 10 γένοιτ' ἄν, τὸ δ' ἀδύνατον, ὅτ' ἀδύνατον, οὐκ ἂν γένοιτο, ἅμα δ' εἰ τὸ Α δυνατὸν καὶ τὸ Β ἀδύνατον, ἐνδέχοιτ' ἂν τὸ Α γενέσθαι ἄνευ τοῦ Β, εἰ δὲ

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[a] This is a mistake on Aristotle's part; the qualification applies equally to the affirmative syllogisms. It is due to the fact that proof *per impossibile* cannot establish both values of a problematic premiss. See note on 34 b 6.

[b] *Cf.* 25 a 37, 32 a 20.

when it is the minor premiss, they will all be imperfect, and such as are negative [a] will not be 'possible' in accordance with the definition, but will be to the effect that the predicate does not necessarily apply to any, or to all, of the subject; for if it does not necessarily apply to any or to all, we say that it may apply to none or may not apply to all.[b]

(α) Major problematic, minor assertoric.

For example, let A possibly apply to all B, and let it be assumed that B applies to all C. Then since C falls under B, and A may apply to all B, evidently A may apply to all C. Thus we get a perfect syllogism. Similarly too if the premiss AB is negative and BC affirmative, the former being problematic and the latter assertoric, there is a perfect syllogism to the effect that A may apply to no C.

Thus it is evident that when the assertoric sense refers to the minor extreme we get perfect syllogisms; but to prove that syllogisms will result when it is in the opposite relation we must employ reduction *ad impossibile*. At the same time it will also become apparent that these syllogisms will be imperfect; for the proof will not be drawn from the premisses originally assumed.

Proof that if A implies B, and A is possible, B must also be possible.

We must first observe that if when A is, B must be, then if A is possible, B must necessarily be possible.[c] For assuming this relation [d] between A and B, let us suppose A to be possible and B impossible. Then (1) if the possible, when it is possible for it to be, may come to be, but the impossible, when it is impossible, cannot come to be; and also (2) if A is possible and B impossible, then it may be possible for A to come to be apart from B; and if

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[c] *Cf. Metaphysics*, IX. (Θ) 1047 b 14-30.

[d] *i.e.* that A implies B.

84 a γενέσθαι, καὶ εἶναι· τὸ γὰρ γεγονός, ὅτε γέγονεν,
ἔστιν. δεῖ δὲ λαμβάνειν μὴ μόνον ἐν τῇ γενέσει
τὸ ἀδύνατον καὶ δυνατόν, ἀλλὰ καὶ ἐν τῷ
15 ἀληθεύεσθαι καὶ ἐν τῷ ὑπάρχειν, καὶ ὁσαχῶς ἄλλως
λέγεται τὸ δυνατόν· ἐν ἅπασι γὰρ ὁμοίως ἕξει.
ἔτι τὸ ὄντος τοῦ Α τὸ Β εἶναι οὐχ ὡς ἑνός τινος
ὄντος τοῦ Α τὸ Β ἔσται δεῖ ὑπολαβεῖν· οὐ γάρ
ἐστιν οὐδὲν ἐξ ἀνάγκης ἑνός τινος ὄντος, ἀλλὰ
δυοῖν ἐλαχίστοιν, οἷον ὅταν αἱ προτάσεις οὕτως
ἔχωσιν ὡς ἐλέχθη κατὰ τὸν συλλογισμόν· εἰ γὰρ
20 τὸ Γ κατὰ τοῦ Δ τὸ δὲ Δ κατὰ τοῦ Ζ, καὶ τὸ Γ
κατὰ τοῦ Ζ ἐξ ἀνάγκης· καὶ εἰ δυνατὸν δ' ἑκάτερον,
καὶ τὸ συμπέρασμα δυνατόν. ὥσπερ οὖν εἴ τις
θείη τὸ μὲν Α τὰς προτάσεις τὸ δὲ Β τὸ
συμπέρασμα, συμβαίνοι ἂν οὐ μόνον ἀναγκαίου τοῦ
Α ὄντος καὶ τὸ Β εἶναι ἀναγκαῖον, ἀλλὰ καὶ
δυνατοῦ δυνατόν.

25 Τούτου δὲ δειχθέντος φανερὸν ὅτι ψεύδους
ὑποτεθέντος καὶ μὴ ἀδυνάτου καὶ τὸ συμβαῖνον διὰ
τὴν ὑπόθεσιν ψεῦδος ἔσται καὶ οὐκ ἀδύνατον.
οἷον εἰ τὸ Α ψεῦδος μέν ἐστι μὴ μέντοι ἀδύνατον,
ὄντος δὲ τοῦ Α τὸ Β ἔστι, καὶ τὸ Β ἔσται ψεῦδος
μὲν οὐ μέντοι ἀδύνατον· ἐπεὶ γὰρ δέδεικται ὅτι
30 εἰ τοῦ Α ὄντος τὸ Β ἔστι, καὶ δυνατοῦ ὄντος τοῦ
Α ἔσται τὸ Β δυνατόν, ὑπόκειται δὲ τὸ Α δυνατὸν
εἶναι, καὶ τὸ Β ἔσται δυνατόν· εἰ γὰρ ἀδύνατον,
ἅμα δυνατὸν ἔσται τὸ αὐτὸ καὶ ἀδύνατον.

Διωρισμένων δὴ τούτων ὑπαρχέτω τὸ Α παντὶ
35 τῷ Β, τὸ δὲ Β παντὶ τῷ Γ ἐνδεχέσθω· ἀνάγκη

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[a] The reference seems to be to 24 b 18, but the point is never proved ; *cf.* 40 b 35, *An. Post.* 73 a 8, 94 a 24.

to come to be, then to be ; for that which has come to be, when it has come to be, is. We must understand the terms 'possible' and 'impossible' with respect not only to generation but also to true statement and to attribution, and in all the other senses in which the term 'possible' is used ; for the same principle will obtain in all of them. Further, we must not suppose that the proposition 'if A is, B is' means that B will be if some *one* assumption A is granted ; for nothing necessarily follows from the granting of one assumption : two at least are required, as, *e.g.*, when the premisses are related as we said[a] with respect to the syllogism. For if C is predicated of D, and D of E, C must also be predicated of E. Moreover, if each of the premisses is possible, the conclusion is also possible. Thus supposing that A represents the premisses and B the conclusion, it will follow, not only that when A is necessary B is necessary too, but also that when A is possible B is possible.

Hence if a premiss is possible, its falsity does not invalidate the conclusion.

As the result of this proof it is evident that if a hypothesis is false[b] but not impossible, the result which is reached by means of the hypothesis will be false but not impossible. For example, if A is false but not impossible, and if when A is, B is, then B will be false but not impossible. For since it has been proved that if when A is, B is, when A is possible, B will also be possible ; and since it is assumed that A is possible, then B will also be possible ; for if it is impossible, the same thing will be at once possible and impossible.

(b) Major assertoric minor

Now that we have made these points clear, let us assume that A applies to all B, and that B may

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[b] For the sense of 'false' here see 34 a 37.

34 a
οὖν τὸ Α παντὶ τῷ Γ ἐνδέχεσθαι ὑπάρχειν. μὴ γὰρ ἐνδεχέσθω, τὸ δὲ Β παντὶ τῷ Γ κείσθω ὡς ὑπάρχον· τοῦτο δὲ ψεῦδος μὲν οὐ μέντοι ἀδύνατον. εἰ οὖν τὸ μὲν Α μὴ ἐνδέχεται τῷ Γ τὸ δὲ Β παντὶ ὑπάρχει τῷ Γ, τὸ Α οὐ παντὶ τῷ Β ἐνδέχεται·
40 γίγνεται γὰρ συλλογισμὸς διὰ τοῦ τρίτου σχήματος. ἀλλ' ὑπέκειτο παντὶ ἐνδέχεσθαι ὑπάρχειν· ἀνάγκη
34 b ἄρα τὸ Α παντὶ τῷ Γ ἐνδέχεσθαι· ψεύδους γὰρ τεθέντος καὶ οὐκ ἀδυνάτου τὸ συμβαῖνόν ἐστιν ἀδύνατον.

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[a] *i.e.* it is not implied by the original premiss. *Cf.* Alexander 185. 16-20 : Becker, *A.T.M.* 55 f.

[b] If Aristotle means this conclusion to be apodeictic he is inconsistent : *cf.* 31 b 37 ff. Becker suggests that since ἀνάγκη is often used merely to indicate the necessary relation of conclusion to premisses, οὐκ ἐνδέχεται may be used here in the same sense. At best the ambiguity is unhappy. It seems more likely that Aristotle was deceived by his own formula. See next note.

[c] Actually the assumption was that A applies to all B. Probably Aristotle employs the weaker form as being the normal contradictory of ' A cannot apply to all B ' (see previous note). The substitution does not affect the validity of the argument.

[d] The form of the argument (and its fallacy) can be clearly seen in the following example, for which I am indebted to Professor T. M. Knox :

If (*a*) All Fellows are wise
and (*b*) All graduates may be Fellows
to prove that (*c*) All graduates may be wise.

Assume the contradictory of (*c*), viz.,

(*d*) Some graduates cannot be wise.

For (*b*) substitute the false but not impossible premiss

(*e*) All graduates are Fellows.
∴ (*f*) Some Fellows [cannot be] are not wise.

problematic. Proof *per impossibile.* (i.) Both premisses affirmative.

apply to all C. Then it necessarily follows that A may apply to all C. For let us assume that it cannot possibly apply, and let B be taken as applying to all C (this is false,[a] but not impossible). If then A cannot apply to ⟨all⟩ C, but B applies to all C, A cannot [b] apply to all B; for we get a syllogism by means of the third figure. But *ex hypothesi* A may [c] apply to all B. Hence it necessarily follows that A may apply to all C; for by making a false though not impossible assumption we get an impossible result.[d]

But this is incompatible with

(*a*) All Fellows [may be] are wise

[∴ since (*c*) is not incompatible with (*a*)

(*d*) must be incompatible with (*a*)].

∴ (*c*), the contrary of (*d*), must be true.

First it should be noted that the proof excludes the negative values of (*b*). It could only establish that no graduates are necessarily not wise (*cf.* 33 b 29). But it fails even to do this. The flaws in the argument are indicated by square brackets. The first two have been noted above, and are relatively unimportant. In the third case the argument clearly depends upon some tacit assumption, which Becker (*A.T.M.* 53) formulates thus:

Wenn $G_1\xi$ & $G_2\xi$ unmöglich ist in bezug auf $F\xi$,
$G_2\xi$ dagegen möglich ist ,, ,,
dann ist G_1 unmöglich ,, ,,

In my opinion his formula is too general and his examples unsuitable for the case in hand. The assumption is rather: If the conjunction of two premisses (*d*) and (*e*) gives a conclusion (*f*) which is incompatible with a given hypothesis (*a*), whereas one of these premisses (*e*) is compatible with the said hypothesis, then the other premiss (*f*) must be incompatible with the said hypothesis.

It will be seen that in our example neither (*d*) nor (*e*) is in itself incompatible with (*a*). The incompatibility only becomes apparent when each premiss is examined in the light of the other; *i.e.*, it is the result of their conjunction. Thus Aristotle's assumption is unsound and the proof fails.

34 b
Ἐγχωρεῖ δὲ καὶ διὰ τοῦ πρώτου σχήματος
ποιῆσαι τὸ ἀδύνατον θέντας τῷ Γ τὸ Β ὑπάρχειν·
εἰ γὰρ τὸ Β παντὶ τῷ Γ ὑπάρχει τὸ δὲ Α παντὶ τῷ
5 Β ἐνδέχεται, κἂν τῷ Γ παντὶ ἐνδέχοιτο τὸ Α·
ἀλλ' ὑπέκειτο μὴ παντὶ ἐγχωρεῖν.

Δεῖ δὲ λαμβάνειν τὸ παντὶ ὑπάρχειν μὴ κατὰ
χρόνον ὁρίσαντας, οἷον νῦν ἢ ἐν τῷδε τῷ χρόνῳ,
ἀλλ' ἁπλῶς· διὰ τοιούτων γὰρ προτάσεων καὶ τοὺς
10 συλλογισμοὺς ποιοῦμεν, ἐπεὶ κατά γε τὸ νῦν
λαμβανομένης τῆς προτάσεως οὐκ ἔσται συλλογισμός·
οὐδὲν γὰρ ἴσως κωλύει ποτὲ καὶ παντὶ
κινουμένῳ ἄνθρωπον ὑπάρχειν, οἷον εἰ μηδὲν ἄλλο
κινοῖτο· τὸ δὲ κινούμενον ἐνδέχεται παντὶ ἵππῳ·
ἀλλ' ἄνθρωπον οὐδενὶ ἵππῳ ἐνδέχεται. ἔτι ἔστω
15 τὸ μὲν πρῶτον ζῷον, τὸ δὲ μέσον κινούμενον, τὸ
δ' ἔσχατον ἄνθρωπος· αἱ μὲν οὖν προτάσεις ὁμοίως
ἕξουσι, τὸ δὲ συμπέρασμα ἀναγκαῖον, οὐκ ἐνδεχό-

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[a] I follow the traditional view that this paragraph is intended to offer an alternative *per impossibile* proof of the syllogism in 34 a 34-36. If we keep the same example as before, the argument appears to be:

The premisses (*g*) All Fellows may be wise
and (*e*) All graduates are Fellows

which are compatible with the original premisses (*a*) and (*b*), give the conclusion (*c*) All graduates may be wise, which is therefore compatible with (*a*) and (*b*). Hence (*d*), the contradictory of (*c*), is incompatible with (*a*) and (*b*), and therefore false. Therefore (*c*) is true.

The argument only establishes the conclusion as a possibility, not as a necessary inference. Hence Becker (*A.T.M.* 57) offers a different explanation; ingenious but hardly convincing

[b] This warning against temporal qualifications was no doubt designed to defend the foregoing syllogism against objections in the form of the examples which follow in the

We can also exhibit an impossibility through the first figure, by assuming that B applies to C. For if B applies to all C, and A may apply to all B, A may also apply to all C. But it was assumed that it cannot apply to all.[a]

Universal premisses must have no temporal qualification.

We must understand the expression 'applying to all,' not as qualified in respect of time,[b] *e.g.*, 'now' or 'at such-and-such a time,' but in an absolute sense; for it is by means of premisses taken in this latter way that we effect our syllogisms. If the premiss is taken as relating to the present moment, there will be no syllogism. For presumably there is no reason why at some time 'man' should not apply to everything that is in motion: *i.e.*, if nothing else were then in motion; but the term 'in motion' may apply to all horses, and 'man' cannot apply to any horse. Again, let us take the first term as 'animal,' the middle as 'in motion,' and the last as 'man.' Then the premisses will be related in the same way as before, but the conclusion is apodeictic

text. The whole paragraph, however, is ill thought out. We have already seen that the major premiss above is treated now as assertoric, now as problematic. Presumably we are here to regard it as assertoric; although the formula *οὐδὲν κωλύει*, etc., points more naturally to a problematic sense. If assertoric, the judgement 'everything in motion is a man' is certainly not universal but collective or enumerative. But the fallacy of the syllogism in which it appears as major premiss is due rather to the incompatibility of the two premisses; the conditions which validate the major exclude the minor.

In the second example the conclusion 'all men may be animals' is the only legitimate inference from the premisses, which are perfectly compatible. Aristotle apparently rejects it because he expects a valid conclusion to state the full and permanent logical relation between the terms which it contains. *Cf.* Introd. p. 188.

34 b μενον· ἐξ ἀνάγκης γὰρ ὁ ἄνθρωπος ζῷον. φανερὸν
οὖν ὅτι τὸ καθόλου ληπτέον ἁπλῶς, καὶ οὐ χρόνῳ
διορίζοντας.

Πάλιν ἔστω στερητικὴ πρότασις καθόλου ἡ ΑΒ,
20 καὶ εἰλήφθω τὸ μὲν Α μηδενὶ τῷ Β ὑπάρχειν, τὸ
δὲ Β παντὶ ἐνδεχέσθω ὑπάρχειν τῷ Γ. τούτων
οὖν τεθέντων ἀνάγκη τὸ Α ἐνδέχεσθαι μηδενὶ τῷ
Γ ὑπάρχειν. μὴ γὰρ ἐνδεχέσθω, τὸ δὲ Β τῷ
Γ κείσθω ὑπάρχον, καθάπερ πρότερον· ἀνάγκη δὴ
τὸ Α τινὶ τῷ Β ὑπάρχειν· γίγνεται γὰρ συλ-
25 λογισμὸς διὰ τοῦ τρίτου σχήματος. τοῦτο δὲ
ἀδύνατον· ὥστ᾿ ἐνδέχοιτ᾿ ἂν τὸ Α μηδενὶ τῷ Γ·
ψεύδους γὰρ τεθέντος ἀδύνατον τὸ συμβαῖνον.
οὗτος οὖν ὁ συλλογισμὸς οὐκ ἔστι τοῦ κατὰ τὸν
διορισμὸν ἐνδεχομένου, ἀλλὰ τοῦ μηδενὶ ἐξ ἀνάγκης·
αὕτη γάρ ἐστιν ἡ ἀντίφασις τῆς γενομένης ὑπο-
30 θέσεως, ἐτέθη γὰρ ἐξ ἀνάγκης τὸ Α τινὶ τῷ Γ
ὑπάρχειν, ὁ δὲ διὰ τοῦ ἀδυνάτου συλλογισμὸς τῆς
ἀντικειμένης ἐστὶν ἀντιφάσεως.

Ἔτι δὲ καὶ ἐκ τῶν ὅρων φανερὸν ὅτι οὐκ ἔσται
τὸ συμπέρασμα ἐνδεχόμενον. ἔστω γὰρ τὸ μὲν
Α κόραξ, τὸ δ᾿ ἐφ᾿ ᾧ Β διανοούμενον, ἐφ᾿ ᾧ δὲ Γ
ἄνθρωπος· οὐδενὶ δὴ τῷ Β τὸ Α ὑπάρχει, οὐδὲν
35 γὰρ διανοούμενον κόραξ· τὸ δὲ Β παντὶ ἐνδέχεται
τῷ Γ, παντὶ γὰρ ἀνθρώπῳ τὸ διανοεῖσθαι· ἀλλὰ
τὸ Α ἐξ ἀνάγκης οὐδενὶ τῷ Γ· οὐκ ἄρα τὸ συμ-
πέρασμα ἐνδεχόμενον. ἀλλ᾿ οὐδ᾿ ἀναγκαῖον ἀεί.

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[a] *i.e.* that A must apply to some C.

[b] 34 a 36.

[c] 31 b 20 ff. The conclusion is only assertoric.

[d] *Cf.* 34 b 1. In the present passage there is clearly an ellipse of καὶ οὐκ ἀδυνάτου, which Jenkinson overlooks.

and not problematic; for man is necessarily an animal. Thus it is evident that the universal premiss must be taken absolutely, and not as qualified in respect of time.

(ii.) Major negative, minor affirmative.

Again, let AB be a negative universal premiss, and let it be assumed that A applies to no B, and that B may apply to all C. Then it must follow from these assumptions that A may apply to no C. For let us assume that it cannot apply ⟨to no C⟩,[a] and let B be taken as applying to all C, as before.[b] Then it must follow that A applies to some B; for we get a syllogism by means of the third figure.[c] But this is impossible. Therefore it will be possible for A to apply to no C; for by making a false ⟨but not impossible⟩ assumption we get an impossible result.[d] Thus this syllogism does not give a conclusion which is 'possible' in the sense defined,[e] but proves that the predicate does not necessarily apply to any of the subject; for this is the contradictory of the assumption which we made, since it was assumed that A necessarily applies to some C, and the syllogism *per impossibile* proves the contradictory opposed to the ⟨impossible⟩ assumption.

Again, it is evident from considering examples of terms that the conclusion will not be problematic. Let A stand for 'crow,' B for 'intelligent,' and C for 'man.' Then A applies to no B; for nothing intelligent is a crow. But B may apply to all C; for intelligence may apply to every man. But A necessarily applies to no C.[f] Hence the conclusion is not problematic. Nor, however, is it always

[e] 32 a 18.

[f] This excludes the possibility that A may apply to all C, which would be implicit in a truly problematic conclusion.

34 b ἔστω γὰρ τὸ μὲν Α κινούμενον, τὸ δὲ Β ἐπιστήμη, τὸ δ' ἐφ' ᾧ Γ ἄνθρωπος. τὸ μὲν οὖν Α οὐδενὶ τῷ
40 Β ὑπάρξει, τὸ δὲ Β παντὶ τῷ Γ ἐνδέχεται, καὶ οὐκ ἔσται τὸ συμπέρασμα ἀναγκαῖον· οὐ γὰρ
35 a ἀνάγκη μηδένα κινεῖσθαι ἄνθρωπον, ἀλλ' οὐκ ἀνάγκη τινά. δῆλον οὖν ὅτι τὸ συμπέρασμά ἐστι τοῦ μηδενὶ ἐξ ἀνάγκης ὑπάρχειν. ληπτέον δὲ βέλτιον τοὺς ὅρους.

Ἐὰν δὲ τὸ στερητικὸν τεθῇ πρὸς τὸ ἔλαττον ἄκρον ἐνδέχεσθαι σημαῖνον, ἐξ αὐτῶν μὲν τῶν
5 εἰλημμένων προτάσεων οὐδεὶς ἔσται συλλογισμός, ἀντιστραφείσης δὲ τῆς κατὰ τὸ ἐνδέχεσθαι προτάσεως ἔσται, καθάπερ ἐν τοῖς πρότερον. ὑπαρχέτω γὰρ τὸ Α παντὶ τῷ Β, τὸ δὲ Β ἐνδεχέσθω μηδενὶ τῷ Γ. οὕτω μὲν οὖν ἐχόντων τῶν ὅρων οὐδὲν ἔσται ἀναγκαῖον· ἐὰν δ' ἀντιστραφῇ τὸ ΒΓ
10 καὶ ληφθῇ τὸ Β παντὶ τῷ Γ ἐνδέχεσθαι, γίγνεται συλλογισμὸς ὥσπερ πρότερον· ὁμοίως γαρ ἔχουσιν οἱ ὅροι τῇ θέσει. τὸν αὐτὸν δὲ τρόπον καὶ στερητικῶν ὄντων ἀμφοτέρων τῶν διαστημάτων, ἐὰν τὸ μὲν ΑΒ μὴ ὑπάρχῃ, τὸ δὲ ΒΓ μηδενὶ ἐνδέχεσθαι σημαίνῃ· δι' αὐτῶν μὲν γὰρ τῶν εἰλημμένων
15 οὐδαμῶς γίγνεται τὸ ἀναγκαῖον, ἀντιστραφείσης δὲ τῆς κατὰ τὸ ἐνδέχεσθαι προτάσεως ἔσται συλλογισμός. εἰλήφθω γὰρ τὸ μὲν Α μηδενὶ τῷ Β ὑπάρχον,[1] τὸ δὲ Β ἐνδέχεσθαι μηδενὶ τῷ Γ· διὰ μὲν οὖν τούτων οὐδὲν ἀναγκαῖον, ἐὰν δὲ ληφθῇ τὸ Β παντὶ τῷ Γ ἐνδέχεσθαι, ὅπερ ἐστὶν αληθές, ἡ
20 δὲ ΑΒ πρότασις ὁμοίως ἔχῃ, πάλιν ὁ αὐτὸς ἔσται

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[1] ὑπάρχειν n.

apodeictic; for let A stand for 'in motion' and B for 'knowledge' and C for 'man.' Then A will apply to no B, but B may apply to all C,[a] and the conclusion will not be apodeictic. For it is not necessary that no man should be in motion; rather it is not necessary that any man should be. Thus it is clear that the conclusion proves that the predicate does not necessarily apply to any of the subject. But the terms must be better chosen.

(iii.) Major affirmative, minor negative.

If, however, the negative premiss refers to the minor extreme and has the problematic signification, there will be no syllogism from the actual premisses assumed, but when the problematic premiss is converted there will be a syllogism, as in the previous examples.[b] Let A apply to all B, and let B possibly apply to no C. Then with the terms in this relation there will be no necessary inference; but if the premiss BC is converted and B is taken as possibly applying to all C, we get a syllogism as before[c]; for the terms are similarly disposed. The same is true when both the propositions are negative, if AB is assertoric and negative, and BC has the sense of possibly applying to none. For by means of the assumptions as they stand we reach no necessary inference at all; but when the problematic premiss is converted there will be a syllogism. For let it be assumed that A applies to no B, and that B may apply to no C. Then from these assumptions there is no necessary inference; but if it is assumed that B may apply to all C, which is true, while the premiss AB remains the same, we shall get the same syllo-

(iv.) Both premisses negative.

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[a] This is false. Knowledge cannot 'apply' to man in the sense that man is knowledge. Aristotle confuses ἐπιστήμη with ἐπίστημον (*cf.* ch. xxxiv.). The confession in 35 a 2 is significant.

[b] 33 a 7, 16.

[c] 34 a 34.

35 a συλλογισμός. ἐὰν δὲ μὴ ὑπάρχειν τεθῇ τὸ Β παντὶ τῷ Γ καὶ μὴ ἐνδέχεσθαι μὴ ὑπάρχειν, οὐκ ἔσται συλλογισμὸς οὐδαμῶς, οὔτε στερητικῆς οὔσης οὔτε καταφατικῆς τῆς ΑΒ προτάσεως. ὅροι δὲ κοινοὶ τοῦ μὲν ἐξ ἀνάγκης ὑπάρχειν λευκόν—ζῷον—χιών, τοῦ δὲ μὴ ἐνδέχεσθαι λευκόν—ζῷον—πίττα.

25 Φανερὸν οὖν ὅτι καθόλου τῶν ὅρων ὄντων καὶ τῆς μὲν ὑπάρχειν τῆς δ' ἐνδέχεσθαι λαμβανομένης τῶν προτάσεων, ὅταν ἡ πρὸς τὸ ἔλαττον ἄκρον ἐνδέχεσθαι λαμβάνηται πρότασις, ἀεὶ γίγνεται συλλογισμός, πλὴν ὁτὲ μὲν ἐξ αὐτῶν ὁτὲ δ' ἀντιστραφείσης τῆς προτάσεως· πότε δὲ τούτων 30 ἑκάτερος καὶ διὰ τίν' αἰτίαν, εἰρήκαμεν.

Ἐὰν δὲ τὸ μὲν καθόλου τὸ δ' ἐν μέρει ληφθῇ τῶν διαστημάτων, ὅταν μὲν τὸ πρὸς τὸ μεῖζον ἄκρον καθόλου τεθῇ καὶ ἐνδεχόμενον, εἴτε ἀποφατικὸν εἴτε καταφατικόν, τὸ δ' ἐν μέρει καταφατικὸν καὶ ὑπάρχον, ἔσται συλλογισμὸς τέλειος, 35 καθάπερ καὶ καθόλου τῶν ὅρων ὄντων. ἀπόδειξις δ' ἡ αὐτὴ ἣ καὶ πρότερον. ὅταν δὲ καθόλου μὲν ᾖ τὸ πρὸς τὸ μεῖζον ἄκρον, ὑπάρχον δὲ καὶ μὴ ἐνδεχόμενον, θάτερον δ' ἐν μέρει καὶ ἐνδεχόμενον, ἐάν τ' ἀποφατικαὶ ἐάν τε καταφατικαὶ τεθῶσιν ἀμφότεραι ἐάν τε ἡ μὲν ἀποφατικὴ ἡ δὲ κατα-40 φατική, πάντως ἔσται συλλογισμὸς ἀτελής· πλὴν 35 b οἱ μὲν διὰ τοῦ ἀδυνάτου δειχθήσονται οἱ δὲ διὰ τῆς ἀντιστροφῆς τῆς τοῦ ἐνδέχεσθαι, καθάπερ ἐν τοῖς πρότερον.

Ἔσται δὲ συλλογισμὸς διὰ τῆς ἀντιστροφῆς καὶ ὅταν ἡ μὲν καθόλου πρὸς τὸ μεῖζον ἄκρον τεθεῖσα

gism once more.[a] But if it is assumed, not that B may apply to no C, but that B does not apply to any C, there will be no syllogism in any case, whether the premiss AB is negative or affirmative. Terms common to both cases and showing a positive apodeictic relation of predicate to subject are white—animal—snow; showing a negative apodeictic relation, white—animal—pitch.

Thus it is evident that if the terms are universal and one premiss is assertoric and the other problematic, when the minor premiss is problematic, a syllogism always results—sometimes from the original assumptions and sometimes after the conversion of the said premiss. We have explained under what conditions each of these two cases obtains, and for what reason.

(2) Major universal, minor particular

If, however, one of the propositions is universal and the other particular, when the major premiss is universal and problematic (whether negative or affirmative) and the particular premiss is affirmative and assertoric, there will be a perfect syllogism, just as when the terms were universal. The proof is the same as before.[b] But when the major premiss is universal, but assertoric and not problematic, and the other is particular and problematic, if both premisses are negative, or both affirmative, or one negative and the other affirmative, in every case there will be an imperfect syllogism; but some will be proved *per impossibile* and others by the conversion of the problematic premiss, as in the previous examples.

We shall also have a syllogism by means of conversion when the universal major premiss has an

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[a] *Cf.* 34 b 19.

[b] 33 b 33 ff.

σημαίνῃ τὸ ὑπάρχειν ἢ μὴ ὑπάρχειν, ἡ δ' ἐν μέρει στερητικὴ οὖσα τὸ ἐνδέχεσθαι λαμβάνῃ, οἷον εἰ τὸ μὲν Α παντὶ τῷ Β ὑπάρχει ἢ μὴ ὑπάρχει, τὸ δὲ Β τινὶ τῷ Γ ἐνδέχεται μὴ ὑπάρχειν· ἀντιστραφέντος γὰρ τοῦ ΒΓ κατὰ τὸ ἐνδέχεσθαι γίγνεται συλλογισμός. ὅταν δὲ τὸ μὴ ὑπάρχειν λαμβάνῃ ἡ κατὰ μέρος τεθεῖσα, οὐκ ἔσται συλλογισμός. ὅροι τοῦ μὲν ὑπάρχειν λευκόν—ζῷον—χιών, τοῦ δὲ μὴ ὑπάρχειν λευκόν—ζῷον—πίττα· διὰ γὰρ τοῦ ἀδιορίστου ληπτέον τὴν ἀπόδειξιν.

Ἐὰν δὲ τὸ καθόλου τεθῇ πρὸς τὸ ἔλαττον ἄκρον τὸ δ' ἐν μέρει πρὸς τὸ μεῖζον, ἐάν τε στερητικὸν ἐάν τε καταφατικόν ἐάν τ' ἐνδεχόμενον ἐάν θ' ὑπάρχον ὁποτερονοῦν, οὐδαμῶς ἔσται συλλογισμός. οὐδ' ὅταν ἐν μέρει ἢ ἀδιόριστοι τεθῶσιν αἱ προτάσεις, εἴτ' ἐνδέχεσθαι λαμβάνουσαι εἴθ' ὑπάρχειν εἴτ' ἐναλλάξ, οὐδ' οὕτως ἔσται συλλογισμός· ἀπόδειξις δ' ἡ αὐτὴ ἣ κἀπὶ τῶν πρότερον. ὅροι δὲ κοινοὶ τοῦ μὲν ὑπάρχειν ἐξ ἀνάγκης ζῷον—λευκόν—ἄνθρωπος, τοῦ δὲ μὴ ἐνδέχεσθαι ζῷον—λευκόν—ἱμάτιον.

Φανερὸν οὖν ὅτι τοῦ μὲν πρὸς τὸ μεῖζον ἄκρον καθόλου τεθέντος ἀεὶ γίγνεται συλλογισμός, τοῦ δὲ πρὸς τὸ ἔλαττον οὐδέποτε οὐδαμῶς.

XVI. Ὅταν δ' ἡ μὲν ἐξ ἀνάγκης ὑπάρχειν ἡ δ' ἐνδέχεσθαι σημαίνῃ τῶν προτάσεων, ὁ μὲν συλλογισμὸς ἔσται τὸν αὐτὸν τρόπον ἐχόντων τῶν ὅρων, καὶ τέλειος ὅταν πρὸς τῷ ἐλάττονι ἄκρῳ τεθῇ τὸ ἀναγκαῖον· τὸ δὲ συμπέρασμα κατηγορικῶν

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[a] *Cf.* 26 b 14, 27 b 20.

affirmative or negative assertoric sense, and the particular premiss is negative and has a problematic sense: *e.g.*, if A applies or does not apply to all B, and B may not apply to some C; for when BC is converted we get a problematic syllogism. But when the particular premiss is assertoric and negative, there will be no syllogism. Examples of terms where the predicate applies to the subject are white—animal—snow; where it does not apply, white—animal—pitch. The proof must be drawn from the indefinite nature of the particular premiss.[a]

(3) Major particular, minor universal.

But if the universal premiss refers to the minor extreme, and the particular to the major, whether either premiss is negative or affirmative, problematic or assertoric, there will in no case be a syllogism. Also when the premisses are particular or indefinite, whether both entail a problematic or both an assertoric relation, or one the former and the other the latter; under these conditions too there will be no syllogism. The proof is the same as in the previous examples.[b] Terms common to all cases where the predicate necessarily applies to the subject are animal—white—man; where it cannot possibly apply, animal—white—coat.

Thus it is evident that when the major premiss is universal, a syllogism always results; but when the minor is universal there is never any syllogism of any kind.

C. Syllogisms with one apodeictic and one problematic premiss.

XVI. When one of the premisses has an apodeictic and the other a problematic sense, there will be a syllogism if the terms are related in the same way as before[c]; and it will be perfect when the apodeictic premiss is attached to the minor term. If the terms

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[b] 33 a 34 ff.

[c] In ch. xv.

85 b
μὲν ὄντων τῶν ὅρων τοῦ ἐνδέχεσθαι καὶ οὐ τοῦ
ὑπάρχειν ἔσται, καὶ καθόλου καὶ μὴ καθόλου
τιθεμένων, ἐὰν δ' ᾖ τὸ μὲν καταφατικὸν τὸ δὲ
30 στερητικόν, ὅταν μὲν ᾖ τὸ καταφατικὸν ἀναγκαῖον,
τοῦ ἐνδέχεσθαι καὶ οὐ τοῦ μὴ ὑπάρχειν, ὅταν δὲ
τὸ στερητικόν, καὶ τοῦ ἐνδέχεσθαι μὴ ὑπάρχειν
καὶ τοῦ μὴ ὑπάρχειν, καὶ καθόλου καὶ μὴ καθόλου
τῶν ὅρων ὄντων. τὸ δ' ἐνδέχεσθαι ἐν τῷ συμ-
περάσματι τὸν αὐτὸν τρόπον ληπτέον ὅνπερ ἐν
τοῖς πρότερον. τοῦ δ' ἐξ ἀνάγκης μὴ ὑπάρχειν οὐκ
35 ἔσται συλλογισμός· ἕτερον γὰρ τὸ μὴ ἐξ ἀνάγκης
ὑπάρχειν καὶ τὸ ἐξ ἀνάγκης μὴ ὑπάρχειν.

Ὅτι μὲν οὖν καταφατικῶν ὄντων τῶν ὅρων οὐ
γίγνεται τὸ συμπέρασμα ἀναγκαῖον, φανερόν. ὑπ-
αρχέτω γὰρ τὸ Α παντὶ τῷ Β ἐξ ἀνάγκης, τὸ δὲ
40 Β ἐνδεχέσθω παντὶ τῷ Γ· ἔσται δὴ[1] συλλογισμὸς
36 a ἀτελὴς ὅτι ἐνδέχεται τὸ Α παντὶ τῷ Γ ὑπάρχειν.
ὅτι δ' ἀτελὴς ἐκ τῆς ἀποδείξεως δῆλον· τὸν αὐτὸν
γὰρ τρόπον δειχθήσεται ὅνπερ κἀπὶ τῶν πρότερον.
πάλιν τὸ μὲν Α ἐνδεχέσθω παντὶ τῷ Β, τὸ δὲ Β
παντὶ τῷ Γ ὑπαρχέτω ἐξ ἀνάγκης· ἔσται δὴ συλ-
5 λογισμὸς ὅτι τὸ Α παντὶ τῷ Γ ἐνδέχεται ὑπάρχειν,
ἀλλ' οὐχ ὅτι ὑπάρχει, καὶ τέλειος ἀλλ' οὐκ ἀτελής·
εὐθὺς γὰρ ἐπιτελεῖται διὰ τῶν ἐξ ἀρχῆς προτάσεων.

Εἰ δὲ μὴ ὁμοιοσχήμονες αἱ προτάσεις, ἔστω
πρῶτον ἡ στερητικὴ ἀναγκαία, καὶ τὸ μὲν Α
μηδενὶ ἐνδεχέσθω τῷ Β [ἐξ ἀνάγκης],[2] τὸ δὲ Β
10 παντὶ τῷ Γ ἐνδεχέσθω· ἀνάγκη δὴ τὸ Α μηδενὶ τῷ
Γ ὑπάρχειν. κείσθω γὰρ ὑπάρχειν ἢ παντὶ ἢ τινί·
τῷ δὲ Β ὑπέκειτο μηδενὶ ἐνδέχεσθαι. ἐπεὶ οὖν

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[1] ἔσται δὴ B, Waitz: ἔσται δὲ i: ἔσται A: ὑπάρχειν C.

[2] ἐξ ἀνάγκης om. Cn, Alexander: μηδενὶ ὑπάρχει ἐξ ἀνάγκης d.

General observations.

are positive, whether they are universal or not, the conclusion will be problematic, not assertoric; if one premiss is affirmative and the other negative, when the affirmative is apodeictic, the conclusion will be problematic, not negative assertoric; and when the negative is apodeictic, there will be both a problematic and an assertoric negative conclusion, whether the terms are universal or not. The sense of 'possibility' in the conclusion must be understood in the same way as before.[a] There will be no inference to the effect that the predicate necessarily does not apply to the subject; for 'not necessarily to apply' is not the same as 'necessarily not to apply.'

(1) Both premisses universal. (*a*) Both affirmative.

Now it is evident that when the terms are positive the conclusion which we get is not apodeictic. For let us assume that A must apply to all B, and B may apply to all C. Then there will be an imperfect syllogism to the effect that A may apply to all C. That it is imperfect is clear from the proof; for the proof will proceed in the same way as before.[b] Again, let us assume that A may apply to all B, and that B must apply to all C. Then there will be a syllogism to the effect that A may apply to all C—not that it *does* apply; and the syllogism will be perfect, not imperfect; for it is concluded directly by means of the original premisses.

(*b*) One affirmative and one negative premiss.

If the premisses are not similar in quality, let us first take the negative premiss as apodeictic; let us assume that it is impossible for A to apply to any B, and let us assume that B may apply to all C. Then it must follow that A applies to no C. For let us assume that it applies to all or some of C. Now it was assumed that it cannot apply to any B. Then

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[a] *Cf.* 33 b 30, 34 b 27.

[b] 34 a 34 ff.

ἀντιστρέφει τὸ στερητικόν, οὐδὲ τὸ Β τῷ Α οὐδενὶ ἐνδέχεται· τὸ δὲ Α τῷ Γ ἢ παντὶ ἢ τινὶ κεῖται ὑπάρχειν· ὥστ' οὐδενὶ ἢ οὐ παντὶ τῷ Γ τὸ Β ἐνδέχοιτ' ἂν ὑπάρχειν· ὑπέκειτο δὲ παντὶ ἐξ ἀρχῆς.

Φανερὸν δ' ὅτι καὶ τοῦ ἐνδέχεσθαι μὴ ὑπάρχειν γίγνεται συλλογισμός, εἴπερ καὶ τοῦ μὴ ὑπάρχειν. πάλιν ἔστω ἡ καταφατικὴ πρότασις ἀναγκαία, καὶ τὸ μὲν Α ἐνδεχέσθω μηδενὶ τῶν[1] Β ὑπάρχειν, τὸ δὲ Β παντὶ τῷ Γ ὑπαρχέτω ἐξ ἀνάγκης. ὁ μὲν οὖν συλλογισμὸς ἔσται τέλειος, ἀλλ' οὐ τοῦ μὴ ὑπάρχειν ἀλλὰ τοῦ ἐνδέχεσθαι μὴ ὑπάρχειν· ἥ τε γὰρ πρότασις οὕτως ἐλήφθη ἡ ἀπὸ τοῦ μείζονος ἄκρου, καὶ εἰς τὸ ἀδύνατον οὐκ ἔστιν ἀγαγεῖν· εἰ γὰρ ὑποτεθείη τὸ Α τῷ Γ τινὶ[2] ὑπάρχειν, κεῖται δὲ καὶ τῷ Β ἐνδέχεσθαι μηδενὶ ὑπάρχειν, οὐδὲν συμβαίνει διὰ τούτων ἀδύνατον. ἐὰν δὲ πρὸς τῷ ἐλάττονι ἄκρῳ τεθῇ τὸ στερητικόν, ὅταν μὲν ἐνδέχεσθαι σημαίνῃ συλλογισμὸς ἔσται διὰ τῆς ἀντιστροφῆς, καθάπερ ἐν τοῖς πρότερον, ὅταν δὲ μὴ ἐνδέχεσθαι οὐκ ἔσται· οὐδ' ὅταν ἄμφω μὲν τεθῇ στερητικὰ μὴ ᾖ δ' ἐνδεχόμενον τὸ πρὸς τὸ ἔλαττον. ὅροι δ' οἱ αὐτοί, τοῦ μὲν ὑπάρχειν λευκόν—ζῷον—χιών, τοῦ δὲ μὴ ὑπάρχειν λευκόν—ζῷον—πίττα.

[1] τῷ C.

[2] τινὶ Bekker: μηδενὶ codd., Alexander.

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[a] The proof fails because the validating syllogism gives not an apodeictic but an assertoric conclusion (*cf.* 30 a 15 ff.) which does not contradict the original minor premiss. It is curious that ' the contradictory of A applies to no C ' should be stated in the form ' A applies to all or some of C.' Becker

since the negative premiss is convertible, neither can B apply to any A. But it has been assumed that A applies to all or some of C. Therefore B cannot apply to any or all of C. But it was originally assumed that it may apply to all.[a]

It is evident that we can have a syllogism of the negative problematic type, since we also have one of the negative assertoric type. Let the affirmative premiss now be apodeictic; and let us assume that A may apply to no B, and that B must apply to all C. Then the syllogism will be perfect, but it will be not of the negative assertoric but of the negative problematic type, for the premiss which relates to the major term was assumed in this sense; and we cannot employ reduction *ad impossibile*. For supposing that we assume that A applies to some C,[b] while it is still assumed that A may apply to no B, no impossible conclusion is obtained by means of these assumptions. If, however, the negative is attached to the minor term, when the sense is problematic, there will be a syllogism by conversion, as in the previous examples[c]; but when the sense is not problematic there will be no syllogism; nor will there be one when both premisses are taken as negative and the minor is not problematic. The terms are the same as before: where the predicate applies to the subject, white—animal—snow; where it does not, white—animal—pitch.

(*A.T.M.* p. 44) argues plausibly that the expression represents the expansion of an originally *indefinite* premiss 'A applies to C.'

[b] This being the contradictory of the conclusion (A applies to no C) which it is hoped to establish.

[c] *Cf.* 35 a 14, b 1, 7. The resultant syllogism will be the same as in 35 b 38 ff.

36 a Τὸν αὐτὸν δὲ τρόπον ἕξει κἀπὶ τῶν ἐν μέρει συλλογισμῶν· ὅταν γὰρ ᾖ τὸ στερητικὸν ἀναγκαῖον, καὶ τὸ συμπέρασμα ἔσται τοῦ μὴ ὑπάρχειν. οἷον 35 εἰ τὸ μὲν Α μηδενὶ τῶν Β ἐνδέχεται ὑπάρχειν τὸ δὲ Β τινὶ τῶν Γ ἐνδέχεται ὑπάρχειν, ἀνάγκη τὸ Α τινὶ τῶν Γ μὴ ὑπάρχειν. εἰ γὰρ παντὶ ὑπάρχει τῷ δὲ Β μηδενὶ ἐνδέχεται, οὐδὲ τὸ Β οὐδενὶ τῷ Α ἐνδέχεται ὑπάρχειν· ὥστ' εἰ τὸ Α παντὶ τῷ Γ ὑπάρχει, οὐδενὶ τῶν Γ τὸ Β ἐνδέχεται· ἀλλ' ὑπέκειτο τινὶ ἐνδέχεσθαι.

40 Ὅταν δὲ τὸ ἐν μέρει καταφατικὸν ἀναγκαῖον ᾖ τὸ ἐν τῷ στερητικῷ συλλογισμῷ, οἷον τὸ ΒΓ, ἢ 36 b τὸ καθόλου ἐν τῷ κατηγορικῷ, οἷον τὸ ΑΒ, οὐκ ἔσται τοῦ ὑπάρχειν συλλογισμός· ἀπόδειξις δ' ἡ αὐτὴ ἣ καὶ ἐπὶ τῶν πρότερον. ἐὰν δὲ τὸ μὲν καθόλου τεθῇ πρὸς τὸ ἔλαττον ἄκρον,[1] ἢ καταφατικὸν ἢ στερητικόν, ἐνδεχόμενον, τὸ δ' ἐν μέρει 5 ἀναγκαῖον [πρὸς τῷ μείζονι ἄκρῳ],[2] οὐκ ἔσται συλλογισμός. ὅροι δὲ τοῦ μὲν ὑπάρχειν ἐξ ἀνάγκης ζῷον—λευκόν—ἄνθρωπος, τοῦ δὲ μὴ ἐνδέχεσθαι ζῷον—λευκόν—ἱμάτιον. ὅταν δ' ἀναγκαῖον ᾖ τὸ καθόλου τὸ δ' ἐν μέρει ἐνδεχόμενον, στερητικοῦ μὲν ὄντος τοῦ καθόλου τοῦ μὲν ὑπάρχειν ὅροι ζῷον 10 —λευκόν—κόραξ, τοῦ δὲ μὴ ὑπάρχειν ζῷον—λευκόν—πίττα, καταφατικοῦ δὲ τοῦ μὲν ὑπάρχειν ζῷον—λευκόν—κύκνος, τοῦ δὲ μὴ ἐνδέχεσθαι ζῷον—λευκόν—χιών.

Οὐδ' ὅταν ἀδιόριστοι ληφθῶσιν αἱ προτάσεις

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[1] τὸ ἔλαττον ἄκρον 'ex optimis libris' Waitz: τῷ ἐλάττονι ἄκρῳ uolgo.

[2] πρὸς . . . ἄκρῳ om. Adf, secl. Waitz.

(2) One universal and one particular premiss.

The same principle will apply to particular syllogisms.[a] When the negative premiss is apodeictic, the conclusion will also be of the negative assertoric type. *E.g.*, if A cannot apply to any B, and B may apply to some C, it must follow that A does not apply to some C. For if A applies to all C, and cannot apply to any B, B too cannot apply to any A; and so if A applies to all C, B cannot apply to any C. But it was assumed that it may apply to some.[b]

When the particular affirmative premiss (viz. BC) in the negative, or the universal premiss (viz. AB) in the affirmative syllogism is apodeictic, the conclusion will not be assertoric. The proof is the same as before.[c] If the universal premiss, whether affirmative or negative, is problematic and relates to the minor, while the particular premiss is apodeictic and relates to the major term, there will be no syllogism. Examples of terms where the predicate necessarily applies are animal—white—man; where the predicate cannot possibly apply, animal—white—coat. When the universal premiss is apodeictic and the particular problematic, (*a*) if the universal is negative, examples of terms where the predicate applies to the subject are animal—white—crow, and where it does not apply, animal—white—pitch; (*b*) if it is affirmative, examples of terms where the predicate applies are animal—white—swan, and where it cannot possibly apply, animal—white—snow.

Nor will there be a syllogism when the premisses

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[a] Aristotle passes over the case of particular syllogisms with both premisses affirmative.

[b] The proof fails as in the corresponding syllogism at 36 a 7 ff., because the validating syllogism does not give the required contradiction.

[c] *Cf.* 36 a 19-25.

36 b
ἢ ἀμφότεραι κατὰ μέρος, οὐδ' οὕτως ἔσται συλλογισμός.
ὅροι δὲ κοινοὶ τοῦ μὲν ὑπάρχειν ζῷον—
15 λευκόν—ἄνθρωπος, τοῦ δὲ μὴ ὑπάρχειν ζῷον—
λευκόν—ἄψυχον. καὶ γὰρ τὸ ζῷον τινὶ λευκῷ καὶ
τὸ λευκὸν ἀψύχῳ τινὶ καὶ ἀναγκαῖον ὑπάρχειν καὶ
οὐκ ἐνδέχεται ὑπάρχειν. κἀπὶ τοῦ ἐνδέχεσθαι
ὁμοίως, ὥστε πρὸς ἅπαντα χρήσιμοι οἱ ὅροι.

Φανερὸν οὖν ἐκ τῶν εἰρημένων ὅτι ὁμοίως
20 ἐχόντων τῶν ὅρων ἔν τε τῷ ὑπάρχειν καὶ ἐν τοῖς
ἀναγκαίοις γίγνεταί τε καὶ οὐ γίγνεται συλλογισμός,
πλὴν κατὰ μὲν τὸ ὑπάρχειν τιθεμένης τῆς στερητικῆς
προτάσεως τοῦ ἐνδέχεσθαι ἦν ὁ συλλογισμός,
κατὰ δὲ τὸ ἀναγκαῖον τῆς στερητικῆς καὶ τοῦ
ἐνδέχεσθαι καὶ τοῦ μὴ ὑπάρχειν. [δῆλον δὲ καὶ
25 ὅτι πάντες ἀτελεῖς οἱ συλλογισμοὶ καὶ ὅτι τελειοῦνται
διὰ τῶν προειρημένων σχημάτων.][1]

XVII. Ἐν δὲ τῷ δευτέρῳ σχήματι ὅταν μὲν
ἐνδέχεσθαι λαμβάνωσιν ἀμφότεραι αἱ προτάσεις,
οὐδεὶς ἔσται συλλογισμός, οὔτε κατηγορικῶν οὔτε
στερητικῶν τιθεμένων οὔτε καθόλου οὔτε κατὰ
μέρος· ὅταν δὲ ἡ μὲν ὑπάρχειν ἡ δ' ἐνδέχεσθαι
30 σημαίνῃ, τῆς μὲν καταφατικῆς ὑπάρχειν σημαινούσης
οὐδέποτ' ἔσται, τῆς δὲ στερητικῆς τῆς
καθόλου ἀεί. τὸν αὐτὸν δὲ τρόπον καὶ ὅταν ἡ μὲν
ἐξ ἀνάγκης ἡ δ' ἐνδέχεσθαι λαμβάνηται τῶν
προτάσεων. δεῖ δὲ καὶ ἐν τούτοις λαμβάνειν τὸ
ἐν τοῖς συμπεράσμασιν ἐνδεχόμενον ὥσπερ ἐν τοῖς
πρότερον.

[1] secl. Maier.

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[a] This sentence is quite out of place here; it seems to be copied from 39 a 1 (Maier, *Syllogistik*, II. i. 176, note 2).

[b] 33 b 30, 34 b 27, 35 b 32.

are taken as indefinite or both as particular. Examples of terms common to all cases where the predicate applies to the subject are animal—white—man; where it does not apply, animal—white—inanimate. For it is at once necessary and impossible both that 'animal' should apply to some things which are white, and that 'white' should apply to some things which are inanimate. Similarly too if the relation is problematic; so the terms are valid for all cases.

(3) Both premisses indefinite o particular.

Thus it is evident from the foregoing analysis that a syllogism does or does not result from a similar relation of the terms in assertoric and in apodeictic propositions; with this qualification, that, as we have seen, if the negative premiss is taken as assertoric the conclusion is problematic, while if the negative premiss is taken as apodeictic, the conclusion is both problematic and negative assertoric. [It is also clear that all the syllogisms are imperfect, and are completed by means of the figures already mentioned.] [a]

Second Figure. General observations.

XVII. In the second figure, when both premisses are problematic, there will be no syllogism, whether they are affirmative or negative, universal or particular; but when one premiss has an assertoric and the other a problematic sense, if it is the affirmative premiss that has the assertoric sense, there will never be a syllogism; but if it is the negative universal premiss, there will always be one. The same holds good when one of the premisses is assumed as apodeictic and the other as problematic. We must understand the sense of 'possibility' in the conclusions in these cases in the same way as before.[b]

36 b
35 Πρῶτον οὖν δεικτέον ὅτι οὐκ ἀντιστρέφει τὸ
ἐν τῷ ἐνδέχεσθαι στερητικόν, οἷον εἰ τὸ Α ἐνδέχε-
ται μηδενὶ τῷ Β, οὐκ ἀνάγκη καὶ τὸ Β ἐνδέχεσθαι
μηδενὶ τῷ Α. κείσθω γὰρ τοῦτο καὶ ἐνδεχέσθω
τὸ Β μηδενὶ τῷ Α ὑπάρχειν. οὐκοῦν ἐπεὶ ἀντι-
στρέφουσιν αἱ ἐν τῷ ἐνδέχεσθαι καταφάσεις ταῖς
40 ἀποφάσεσι καὶ αἱ ἐναντίαι καὶ αἱ ἀντικείμεναι,[a] τὸ
37 a δὲ Β τῷ Α ἐνδέχεται μηδενὶ ὑπάρχειν, φανερὸν
ὅτι καὶ παντὶ ἐνδέχοιτο ἂν τὸ Β τῷ Α ὑπάρχειν.
τοῦτο δὲ ψεῦδος· οὐ γὰρ εἰ τόδε τῷδε παντὶ
ἐνδέχεται, καὶ τόδε τῷδε ἀναγκαῖον· ὥστ' οὐκ
ἀντιστρέφει τὸ στερητικόν.

Ἔτι δ' οὐδὲν κωλύει τὸ μὲν Α τῷ Β ἐνδέχεσθαι
5 μηδενί, τὸ δὲ Β τινὶ τῶν Α ἐξ ἀνάγκης μὴ ὑπάρχειν,
οἷον τὸ μὲν λευκὸν παντὶ ἀνθρώπῳ ἐνδέχεται μὴ
ὑπάρχειν (καὶ γὰρ ὑπάρχειν), ἄνθρωπον δ' οὐκ
ἀληθὲς εἰπεῖν ὡς ἐνδέχεται μηδενὶ λευκῷ· πολλοῖς
γὰρ ἐξ ἀνάγκης οὐχ ὑπάρχει, τὸ δ' ἀναγκαῖον οὐκ
ἦν ἐνδεχόμενον.

10 Ἀλλὰ μὴν οὐδ' ἐκ τοῦ ἀδυνάτου δειχθήσεται
ἀντιστρέφον, οἷον εἴ τις ἀξιώσειεν, ἐπεὶ ψεῦδος τὸ
ἐνδέχεσθαι τὸ Β τῷ Α μηδενὶ ὑπάρχειν, ἀληθὲς τὸ
μὴ ἐνδέχεσθαι μηδενί (φάσις γὰρ καὶ ἀπόφασις),
εἰ δὲ τοῦτ', ἀληθὲς ἐξ ἀνάγκης τινὶ τῶν Α τὸ Β

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[a] The meaning of ἀντικείμεναι is very doubtful, but 'contradictories' (Jenkinson) must surely be wrong; no proposition is convertible with its contradictory. Nor indeed is a proposition convertible with its contrary; but since B a A and B e A are contrary propositions in the assertoric mode, it is natural though inaccurate to describe them as such in the problematic mode (Alexander 221. 19). Since the only other problematic propositions which are convertible without change of quantity are the sub-contraries

First we must show that there is no conversion of the negative problematic premiss; *e.g.*, that if A may apply to no B, it does not necessarily follow that B may apply to no A. Let this be assumed; *i.e.* let us take it that B may apply to no A. Then since affirmations in the problematic sense convert with their negations, whether contrary or opposite,[a] and since B may apply to no A, evidently B may also apply to all A. But this is false; for it does not necessarily follow that if one term may apply to all of another, the latter may also apply to all of the former. Therefore the negative ⟨problematic⟩ statement is not convertible. **Negative problematic premisses not convertible. First proof.**

Again, there is no reason why A should not possibly apply to no B, although B necessarily does not apply to some A. *E.g.*, 'white' may not apply to any man (for it may also apply to every man), but it is not true to say that 'man' may apply to nothing that is white; for 'man' necessarily does not apply to many white things, and (as we have seen[b]) the necessary is not possible. **Second proof.**

Furthermore, this type of proposition cannot be shown to be convertible by reduction *ad impossibile*, *e.g.*, if it were to be claimed that since it is false[c] that B may apply to no A, it is true that it cannot apply to no A, since the latter statement is the contradictory of the former; and if this is so, it is true that B must apply to some A; therefore A **Third proof.**

B i A and B o A, and since these are at least verbally opposed to each other (*cf.* 32 a 32-36, and II. 63 b 23-28, I suggest that they are meant here by ἀντικείμεναι. Alexander notes this possibility (222. 2-4), but without much favour.

[b] 32 a 28.

[c] *Sc.* as an inference from the proposition 'A may apply to no B.'

37 a
ὑπάρχειν· ὥστε καὶ τὸ Α τινὶ τῶν Β· τοῦτο δ'
15 ἀδύνατον.[1] οὐ γὰρ εἰ μὴ ἐνδέχεται μηδενὶ τὸ Β
τῷ Α, ἀνάγκη τινὶ ὑπάρχειν. τὸ γὰρ μὴ ἐνδέχεσθαι
μηδενὶ διχῶς λέγεται, τὸ μὲν εἰ ἐξ ἀνάγκης
τινὶ ὑπάρχει, τὸ δ' εἰ ἐξ ἀνάγκης τινὶ μὴ ὑπάρχει·
τὸ γὰρ ἐξ ἀνάγκης τινὶ τῶν Α μὴ ὑπάρχον οὐκ
ἀληθὲς εἰπεῖν ὡς παντὶ ἐνδέχεται μὴ ὑπάρχειν,
20 ὥσπερ οὐδὲ τὸ τινὶ ὑπάρχον ἐξ ἀνάγκης ὅτι παντὶ
ἐνδέχεται ὑπάρχειν. εἰ οὖν τις ἀξιοίη, ἐπεὶ οὐκ
ἐνδέχεται τὸ Γ τῷ Δ παντὶ ὑπάρχειν, ἐξ ἀνάγκης
τινὶ μὴ ὑπάρχειν αὐτό, ψεῦδος ἂν λαμβάνοι· παντὶ
γὰρ ὑπάρχει, ἀλλ' ὅτι ἐν ἐνίοις ἐξ ἀνάγκης ὑπάρχει,
διὰ τοῦτό φαμεν οὐ παντὶ ἐνδέχεσθαι. ὥστε τῷ
25 ἐνδέχεσθαι παντὶ ὑπάρχειν τό τ' ἐξ ἀνάγκης τινὶ
ὑπάρχειν ἀντίκειται καὶ τὸ ἐξ ἀνάγκης τινὶ μὴ
ὑπάρχειν· ὁμοίως δὲ καὶ τῷ ἐνδέχεσθαι μηδενί.

Δῆλον οὖν ὅτι πρὸς τὸ οὕτως ἐνδεχόμενον καὶ
μὴ ἐνδεχόμενον, ὡς ἐν ἀρχῇ διωρίσαμεν, οὐ μόνον[2]
τὸ ἐξ ἀνάγκης τινὶ ὑπάρχειν ἀλλὰ καὶ[3] τὸ ἐξ
ἀνάγκης τινὶ μὴ ὑπάρχειν ληπτέον· τούτου δὲ
30 ληφθέντος οὐδὲν συμβαίνει ἀδύνατον, ὥστ' οὐ
γίγνεται συλλογισμός. φανερὸν οὖν ἐκ τῶν εἰρημένων
ὅτι οὐκ ἀντιστρέφει τὸ στερητικόν.

Τούτου δὲ δειχθέντος κείσθω τὸ Α τῷ μὲν Β
ἐνδέχεσθαι μηδενὶ τῷ δὲ Γ παντί. διὰ μὲν οὖν
τῆς ἀντιστροφῆς οὐκ ἔσται συλλογισμός· εἴρηται

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[1] τῶν Β· τοῦτο δ' ἀδύνατον. Maier: τῶν Β. τοῦτο δ' ἀδύνατον· uolgo.

[2] μόνον om. AC.

[3] καὶ om. Af.

must also apply to some B ; but this is impossible. ⟨The reasoning is unsound,⟩ because it does not follow that if B cannot apply to no A, it must apply to some. For there are two senses in which we say that it is not possible for a predicate to apply to none of a subject, viz. (*a*) if it necessarily applies to some, and (*b*) if it necessarily does not apply to some. For it is not true to say that that which necessarily does not apply to some As may not apply to every A, any more than it is true that that which necessarily applies to some may apply to all. Thus if it should be claimed that since it is not possible that C should apply to all D, it necessarily does not apply to some, the assumption would be false ; for it does apply to all, but because in some cases it applies necessarily, for this reason we say that it is not *possible* for it to apply to all. Thus to the proposition 'A may apply to all B' is opposed not only 'A must not apply to some B' but also 'A must apply to some B'; and similarly with the proposition 'A may apply to no B.'

Thus it is clear that we must regard as opposed to that which is possible or not possible in the sense which we originally defined,[a] not only that which necessarily applies to some, but also that which necessarily does not apply to some ; and if we do this, no impossible conclusion follows ⟨in the foregoing example⟩, and so no syllogism results. Thus it is evident from what has been said that the negative ⟨problematic⟩ premiss is not convertible.

A. Both premisses problematic.

Now that this has been proved, let it be assumed that A may apply to no B, but to all C. Then there will be no syllogism by means of conversion ; for it

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[a] 32 a 18.

37 a
35 γὰρ ὅτι οὐκ ἀντιστρέφει ἡ τοιαύτη πρότασις. ἀλλ'
οὐδὲ διὰ τοῦ ἀδυνάτου· τεθέντος γὰρ τοῦ Β παντὶ[1]
τῷ Γ ἐνδέχεσθαι ὑπάρχειν[2] οὐδὲν συμβαίνει ψεῦδος·
ἐνδέχοιτο γὰρ ἂν τὸ Α τῷ Γ καὶ παντὶ καὶ μηδενὶ
ὑπάρχειν. ὅλως δ' εἰ ἔστι συλλογισμός, δῆλον ὅτι
τοῦ ἐνδέχεσθαι ἂν εἴη (διὰ τὸ μηδετέραν τῶν προ-
40 τάσεων εἰλῆφθαι ἐν τῷ ὑπάρχειν), καὶ οὗτος ἢ
37 b καταφατικὸς ἢ στερητικός· οὐδετέρως δ' ἐγχωρεῖ.
καταφατικοῦ μὲν γὰρ τεθέντος δειχθήσεται διὰ
τῶν ὅρων ὅτι οὐκ ἐνδέχεται ὑπάρχειν, στερητικοῦ
δὲ ὅτι τὸ συμπέρασμα οὐκ ἐνδεχόμενον ἀλλ' ἀναγ-
καῖόν ἐστιν. ἔστω γὰρ τὸ μὲν Α λευκὸν τὸ δὲ Β
5 ἄνθρωπος ἐφ' ᾧ δὲ Γ ἵππος· τὸ δὴ Α, τὸ λευκόν,
ἐνδέχεται τῷ μὲν παντὶ τῷ δὲ μηδενὶ ὑπάρχειν,
ἀλλὰ τὸ Β τῷ Γ οὔτε ὑπάρχειν ἐνδέχεται οὔτε
μὴ ὑπάρχειν. ὅτι μὲν οὖν ὑπάρχειν οὐκ ἐγχωρεῖ
φανερόν, οὐδεὶς γὰρ ἵππος ἄνθρωπος· ἀλλ' οὐδ'
ἐνδέχεσθαι μὴ ὑπάρχειν, ἀνάγκη γὰρ μηδένα ἵππον
10 ἄνθρωπον εἶναι, τὸ δ' ἀναγκαῖον οὐκ ἦν ἐνδεχό-
μενον. οὐκ ἄρα γίγνεται συλλογισμός.

Ὁμοίως δὲ δειχθήσεται καὶ ἂν ἀνάπαλιν τεθῇ
τὸ στερητικόν, κἂν ἀμφότεραι καταφατικαὶ ληφ-
θῶσιν ἢ στερητικαί· διὰ γὰρ τῶν αὐτῶν ὅρων
ἔσται ἡ ἀπόδειξις. καὶ ὅταν ἡ μὲν καθόλου ἡ δ'
ἐν μέρει, ἢ ἀμφότεραι κατὰ μέρος ἢ ἀδιόριστοι,
15 ἢ ὁσαχῶς ἄλλως ἐνδέχεται μεταλαβεῖν τὰς προ-

[1] παντὶ] μὴ παντὶ Maier.
[2] ὑπάρχειν] μὴ ὑπάρχειν Maier.

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[a] *i.e.* the major premiss AB.

[b] The sense is clearly wrong. This premiss must be intended to contradict the conclusion (B may apply to no C) which it is required to establish. The true contradictory would be 'B must apply to some C'; this when combined with the

No syllogism results.

has been already observed that such a premiss as this[a] is not convertible. Nor, again, will there be a syllogism by reduction *ad impossibile*; for if it is assumed that B may apply to all C[b] no falsity results, because A might apply both to all and to none of C. In fine, if there is a syllogism with these premisses, clearly it will be problematic, since neither of the premisses is taken in an assertoric sense; and this syllogism will be either affirmative or negative. But neither alternative is admissible; for if it is assumed to be affirmative, it can be shown by examples of terms that the predicate does not apply to the subject, and if to be negative, that the conclusion is not problematic but apodeictic. Let A be 'white,' B 'man' and C 'horse.' Then A, *i.e.* white, may apply to all of the one and to none of the other; but it is not possible either that B should or should not apply to C. That it is not possible that it should apply is evident, for no horse is a man. But neither is it possible that it should not apply; for it is necessary that no horse should be a man, and the necessary, as we have seen,[c] is not possible. Hence no syllogism results.

There will be a similar proof if the negative is taken with the other premiss instead, or if both premisses are taken as affirmative or both as negative; for the proof will be drawn from the same terms. The same holds good when one premiss is universal and the other particular, or when both are particular or indefinite, or for any other possible combination

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major premiss would give 'A may not apply to some C,' which is not incompatible with the minor premiss. Maier's emendation gives the right sense, but it has no support from MSS. or commentators, and is at best a clumsy and unnatural form of expression.

[c] 32 a 28.

τάσεις· ἀεὶ γὰρ ἔσται διὰ τῶν αὐτῶν ὅρων ἡ ἀπόδειξις. φανερὸν οὖν ὅτι ἀμφοτέρων τῶν προτάσεων κατὰ τὸ ἐνδέχεσθαι τιθεμένων οὐδεὶς γίγνεται συλλογισμός.

XVIII. Εἰ δ' ἡ μὲν ὑπάρχειν ἡ δ' ἐνδέχεσθαι σημαίνει, τῆς μὲν κατηγορικῆς ὑπάρχειν τεθείσης τῆς δὲ στερητικῆς ἐνδέχεσθαι οὐδέποτ' ἔσται συλλογισμός, οὔτε καθόλου τῶν ὅρων οὔτ' ἐν μέρει λαμβανομένων· ἀπόδειξις δ' ἡ αὐτὴ καὶ διὰ τῶν αὐτῶν ὅρων. ὅταν δ' ἡ μὲν καταφατικὴ ἐνδέχεσθαι ἡ δὲ στερητικὴ ὑπάρχειν, ἔσται συλλογισμός. εἰλήφθω γὰρ τὸ Α τῷ μὲν Β μηδενὶ ὑπάρχειν τῷ δὲ Γ παντὶ ἐνδέχεσθαι. ἀντιστραφέντος οὖν τοῦ στερητικοῦ τὸ Β τῷ Α οὐδενὶ ὑπάρξει· τὸ δὲ Α παντὶ τῷ Γ ἐνεδέχετο· γίγνεται δὴ συλλογισμὸς ὅτι ἐνδέχεται τὸ Β μηδενὶ τῷ Γ διὰ τοῦ πρώτου σχήματος. ὁμοίως δὲ καὶ εἰ πρὸς τῷ Γ τεθείη τὸ στερητικόν.

Ἐὰν δ' ἀμφότεραι μὲν ὦσι στερητικαί, σημαίνῃ δ' ἡ μὲν μὴ ὑπάρχειν ἡ δ' ἐνδέχεσθαι μὴ ὑπάρχειν, δι' αὐτῶν μὲν τῶν εἰλημμένων οὐδὲν συμβαίνει ἀναγκαῖον, ἀντιστραφείσης δὲ τῆς κατὰ τὸ ἐνδέχεσθαι προτάσεως γίγνεται συλλογισμὸς ὅτι τὸ Β τῷ Γ ἐνδέχεται μηδενὶ ὑπάρχειν, καθάπερ ἐν τοῖς πρότερον· ἔσται γὰρ πάλιν τὸ πρῶτον σχῆμα. ἐὰν δ' ἀμφότεραι τεθῶσι κατηγορικαί, οὐκ ἔσται συλλογισμός. ὅροι τοῦ μὲν ὑπάρχειν ὑγίεια—ζῷον—ἄνθρωπος, τοῦ δὲ μὴ ὑπάρχειν ὑγίεια—ἵππος—ἄνθρωπος.

Τὸν αὐτὸν δὲ τρόπον ἕξει κἀπὶ τῶν ἐν μέρει συλλογισμῶν. ὅταν μὲν γὰρ ᾖ τὸ καταφατικὸν

of premisses; for the proof will always be drawn from the same terms. Thus it is evident that if both the premisses are taken as problematic, no syllogism results.

B. One assertoric and one problematic premiss. (1) Both premisses universal.

XVIII. If, however, one premiss has an assertoric and the other a problematic sense, when the affirmative is assumed as assertoric and the negative as problematic there will never be a syllogism, whether the terms are taken as universal or as particular. The proof will be the same as before, and drawn from the same terms. But when the affirmative is problematic and the negative assertoric there will be a syllogism. Let it be assumed that A applies to no B but may apply to all C. Then if the negative premiss is converted, B will apply to no A. But it was assumed that A may apply to all C. Therefore a syllogism results by means of the first figure,[a] to the effect that B may apply to no C. Similarly too if the negative be attached to C.[b]

If both premisses are negative, one having a negative assertoric and the other a negative problematic sense, no necessary conclusion results by means of the assumptions as they are; but on the conversion of the problematic premiss a syllogism results to the effect that B may apply to no C, as in the previous example; for once again we shall have the first figure. If, however, both premisses are taken as affirmative, there will be no syllogism. Examples of terms where the predicate applies to the subject are health—animal—man; where it does not apply, health—horse—man.

(2) One premiss particular.

The same principle will also obtain in the case of particular syllogisms. When it is the affirmative

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[a] 34 b 19 ff.

[b] 35 a 6 ff.

ὑπάρχον, εἴτε καθόλου εἴτ' ἐν μέρει ληφθέν, οὐδεὶς ἔσται συλλογισμός (τοῦτο δ' ὁμοίως καὶ διὰ τῶν αὐτῶν ὅρων δείκνυται τοῖς πρότερον), ὅταν δὲ τὸ στερητικόν, ἔσται διὰ τῆς ἀντιστροφῆς, καθάπερ ἐν τοῖς πρότερον. πάλιν ἐὰν ἄμφω μὲν τὰ διαστήματα στερητικὰ ληφθῇ, καθόλου δὲ τὸ μὴ ὑπάρχειν, ἐξ αὐτῶν μὲν τῶν προτάσεων οὐκ ἔσται τὸ ἀναγκαῖον, ἀντιστραφέντος δὲ τοῦ ἐνδέχεσθαι, καθάπερ ἐν τοῖς πρότερον, ἔσται συλλογισμός.

Ἐὰν δὲ ὑπάρχον μὲν ᾖ τὸ στερητικὸν ἐν μέρει δὲ ληφθῇ, οὐκ ἔσται συλλογισμὸς οὔτε καταφατικῆς οὔτε στερητικῆς οὔσης τῆς ἑτέρας προτάσεως· οὐδ' ὅταν ἀμφότεραι ληφθῶσιν ἀδιόριστοι, ἢ καταφατικαὶ ἢ ἀποφατικαί, ἢ κατὰ μέρος. ἀπόδειξις δ' ἡ αὐτὴ καὶ διὰ τῶν αὐτῶν ὅρων.

XIX. Ἐὰν δ' ἡ μὲν ἐξ ἀνάγκης ἡ δ' ἐνδέχεσθαι σημαίνῃ τῶν προτάσεων, τῆς μὲν στερητικῆς ἀναγκαίας οὔσης ἔσται συλλογισμὸς οὐ μόνον ὅτι ἐνδέχεται μὴ ὑπάρχειν ἀλλὰ καὶ ὅτι οὐχ ὑπάρχει· τῆς δὲ καταφατικῆς οὐκ ἔσται. κείσθω γὰρ τὸ Α τῷ μὲν Β ἐξ ἀνάγκης μηδενὶ ὑπάρχειν, τῷ δὲ Γ παντὶ ἐνδέχεσθαι. ἀντιστραφείσης οὖν τῆς στερητικῆς οὐδὲ τὸ Β τῷ Α οὐδενὶ ὑπάρξει· τὸ δὲ Α παντὶ τῷ Γ ἐνεδέχετο· γίγνεται δὴ πάλιν διὰ τοῦ πρώτου σχήματος ὁ συλλογισμὸς ὅτι τὸ Β τῷ Γ ἐνδέχεται μηδενὶ ὑπάρχειν. ἅμα δὲ δῆλον ὅτι οὐδ' ὑπάρχει[1] τὸ Β οὐδενὶ τῶν Γ. κείσθω γὰρ ὑπάρχειν· οὐκοῦν εἰ τὸ Α τῷ Β μηδενὶ ἐνδέχεται

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[1] ὑπάρξει Cn, Bekker.

statement that is assertoric, whether it is taken as universal or as particular, there will be no syllogism (this can be proved by the same method and the same terms as before); but when it is the negative,[a] there will be a syllogism by conversion, as in the previous examples. On the other hand, if both propositions are taken as negative and the negative assertoric is universal, no necessary conclusion will result from the premisses as they stand, but when the problematic statement is converted there will be a syllogism, as before.

If the negative statement is assertoric and taken as particular, there will be no syllogism, whether the other premiss is affirmative or negative; nor will there be a syllogism when both are taken as indefinite, whether affirmative or negative; or as particular. The proof is the same and is effected by the same terms.

C. One apodeictic and one problematic premiss.
(1) Universal syllogisms.
(*a*) One affirmative and one negative premiss.

XIX. If one premiss is apodeictic and the other has a problematic sense, when it is the negative premiss that is apodeictic, there will be a syllogism, not only to the effect that the predicate may not apply to the subject, but also that it does not apply; but when it is the affirmative premiss, there will be no syllogism. For let it be assumed that A necessarily applies to no B, but may apply to all C. Then by the conversion of the negative premiss, B will also apply to no A; and it was assumed that A may apply to all C. Thus once again by means of the first figure a syllogism results to the effect that B may apply to no C.[b] Moreover it is obvious also that B does not apply to any C. For let it be assumed that it does apply. Then if A cannot apply to any B,

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[a] *Sc.* universal.

[b] *Cf.* 36 a 15 ff.

38 a τὸ δὲ Β ὑπάρχει τινὶ τῶν Γ, τὸ Α τῶν Γ τινὶ οὐκ
25 ἐνδέχεται· ἀλλὰ παντὶ ὑπέκειτο ἐνδέχεσθαι.

Τὸν αὐτὸν δὲ τρόπον δειχθήσεται καὶ εἰ πρὸς τῷ
Γ τεθείη τὸ στερητικόν.

Πάλιν ἔστω τὸ κατηγορικὸν ἀναγκαῖον θάτερον
δ' ἐνδεχόμενον, καὶ τὸ Α τῷ μὲν Β ἐνδεχέσθω
μηδενὶ τῷ δὲ Γ παντὶ ὑπαρχέτω ἐξ ἀνάγκης.
οὕτως οὖν ἐχόντων τῶν ὅρων οὐδεὶς ἔσται συλ-
30 λογισμός· συμβαίνει γὰρ τὸ Β τῷ Γ ἐξ ἀνάγκης
μὴ ὑπάρχειν. ἔστω γὰρ τὸ μὲν Α λευκὸν ἐφ' ᾧ
δὲ τὸ Β ἄνθρωπος ἐφ' ᾧ δὲ τὸ Γ κύκνος· τὸ δὴ
λευκὸν κύκνῳ μὲν ἐξ ἀνάγκης ὑπάρχει ἀνθρώπῳ
δ' ἐνδέχεται μηδενί, καὶ ἄνθρωπος οὐδενὶ κύκνῳ
ἐξ ἀνάγκης. ὅτι μὲν οὖν τοῦ ἐνδέχεσθαι οὐκ
35 ἔστι συλλογισμὸς φανερόν· τὸ γὰρ ἐξ ἀνάγκης
οὐκ ἦν ἐνδεχόμενον.

Ἀλλὰ μὴν οὐδὲ τοῦ ἀναγκαίου· τὸ γὰρ ἀναγ-
καῖον ἢ ἐξ ἀμφοτέρων ἀναγκαίων ἢ ἐκ τῆς στερη-
τικῆς συνέβαινεν. ἔτι δὲ καὶ ἐγχωρεῖ τούτων
κειμένων τὸ Β τῷ Γ ὑπάρχειν· οὐδὲν γὰρ κωλύει
40 τὸ μὲν Γ ὑπὸ τὸ Β εἶναι τὸ δὲ Α τῷ μὲν Β παντὶ
ἐνδέχεσθαι τῷ δὲ Γ ἐξ ἀνάγκης ὑπάρχειν, οἷον εἰ
τὸ μὲν Γ εἴη ἐγρηγορὸς τὸ δὲ Β ζῷον τὸ δ' ἐφ'
38 b ᾧ Α κίνησις· τῷ μὲν γὰρ ἐγρηγορότι ἐξ ἀνάγκης
κίνησις, ζῴῳ δὲ παντὶ ἐνδέχεται, καὶ πᾶν τὸ
ἐγρηγορὸς ζῷον. φανερὸν οὖν ὅτι οὐδὲ τοῦ μὴ
ὑπάρχειν, εἴπερ οὕτως ἐχόντων ἀνάγκη ὑπάρχειν.

and B applies to some C, A cannot possibly apply to some C.[a] But it was assumed that it may apply to all.

The proof can also be effected in the same way supposing that the negative be attached to C.

On the other hand, let the affirmative statement be apodeictic and the other problematic: let A possibly apply to no B, and necessarily apply to all C. Then when the terms are in this relation there will be no syllogism; for it can so happen that B necessarily does not apply to C. *E.g.*, let A be 'white,' B 'man' and C 'swan.' Then white necessarily applies to swan, but may apply to no man; and 'man' necessarily applies to no swan. Thus it is evident that there is no syllogism of the problematic type; for we have seen[b] that the necessary is not possible.

Nor again will there be an apodeictic syllogism; for we saw[c] that an apodeictic conclusion ⟨only⟩ results when both premisses are apodeictic, or when the negative premiss is apodeictic. Again, it is possible, with the terms taken in this way, for B to apply to C. For there is no reason why C should not fall under B in such a way that A may apply to all B, but must apply to all C; *e.g.*, if C were 'waking,' B 'animal' and A 'motion'; for that which is awake must have motion, and every animal may have motion, and every waking thing is an animal. Thus it is evident that there is no negative assertoric conclusion either, since with this arrangement of terms the conclusion is assertoric and affirmative.

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[a] This is a fallacy. *Cf.* note on 36 a 15.

[b] 32 a 28.

[c] 30 b 7, 31 a 21.

38 b
οὐδὲ δὴ τῶν ἀντικειμένων καταφάσεων,[1] ὥστ'
οὐδεὶς ἔσται συλλογισμός.

5 Ὁμοίως δὲ δειχθήσεται καὶ ἀνάπαλιν τεθείσης
τῆς καταφατικῆς.

Ἐὰν δ' ὁμοιοσχήμονες ὦσιν αἱ προτάσεις,
στερητικῶν μὲν οὐσῶν ἀεὶ γίγνεται συλλογισμὸς
ἀντιστραφείσης τῆς κατὰ τὸ ἐνδέχεσθαι
προτάσεως, καθάπερ ἐν τοῖς πρότερον. εἰλήφθω γὰρ
10 τὸ Α τῷ μὲν Β ἐξ ἀνάγκης μὴ ὑπάρχειν, τῷ δὲ Γ
ἐνδέχεσθαι μὴ ὑπάρχειν· ἀντιστραφεισῶν οὖν τῶν
προτάσεων τὸ μὲν Β τῷ Α οὐδενὶ ὑπάρχει τὸ δὲ
Α παντὶ τῷ Γ ἐνδέχεται· γίγνεται δὴ τὸ πρῶτον
σχῆμα. κἂν εἰ πρὸς τῷ Γ τεθείη τὸ στερητικὸν
ὡσαύτως.

Ἐὰν δὲ κατηγορικαὶ τεθῶσιν, οὐκ ἔσται
15 συλλογισμός. τοῦ μὲν γὰρ μὴ ὑπάρχειν ἢ τοῦ ἐξ
ἀνάγκης μὴ ὑπάρχειν φανερὸν ὅτι οὐκ ἔσται διὰ
τὸ μὴ εἰλῆφθαι στερητικὴν πρότασιν μήτ' ἐν τῷ
ὑπάρχειν μήτ' ἐν τῷ ἐξ ἀνάγκης ὑπάρχειν. ἀλλὰ
μὴν οὐδὲ τοῦ ἐνδέχεσθαι μὴ ὑπάρχειν· ἐξ ἀνάγκης
γὰρ οὕτως ἐχόντων τὸ Β τῷ Γ οὐχ ὑπάρξει, οἷον
20 εἰ τὸ μὲν Α τεθείη λευκὸν ἐφ' ᾧ δὲ τὸ Β κύκνος τὸ
δὲ Γ ἄνθρωπος. οὐδέ γε τῶν ἀντικειμένων
καταφάσεων,[2] ἐπεὶ δέδεικται τὸ Β τῷ Γ ἐξ ἀνάγκης
οὐχ ὑπάρχον. οὐκ ἄρα γίγνεται συλλογισμὸς ὅλως.

Ὁμοίως δ' ἕξει κἀπὶ τῶν ἐν μέρει συλλογισμῶν·

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[1] καταφάσεων n, Alexander, Waitz: φάσεων.

[2] καταφάσεων Alexander, Waitz: καταφάσεων καὶ ἀποφάσεων n: ἀποφάνσεων A²BCum: ἀντιφάνσεων A¹: ἀντιφάσεων d: ἀποφάσεων f.

Nor again is there a conclusion which takes the form of any of the opposite statements.[a] Therefore there will be no syllogism.

There will be a similar proof if the affirmative premiss occupies the other position.

(b) Both premisses negative.

If the premisses are similar in quality, where they are negative a syllogism always results on the conversion of the problematic premiss, as before. Let it be assumed that A necessarily does not apply to B, and may not apply to C. Then on the conversion of the premisses B applies to no A, and A may apply to all C. Thus the first figure results. Similarly also if the negative statement relates to C.[b]

(c) Both premisses affirmative.

If, however, the premisses are taken as affirmative, there will be no syllogism. It is evident that there will be none of the negative assertoric or of the negative apodeictic type, since no negative premiss has been assumed, either in the assertoric or in the apodeictic sense. Furthermore, there will be none of the negative problematic type; for with the terms in this relation B will necessarily not apply to C; *e.g.*, if A is taken to be 'white,' B 'swan' and C 'man.' Nor can we conclude any of the opposite affirmations, because we have shown [c] that B necessarily does not apply to C. Thus no syllogism at all results.

(2) Particular syllogisms.

The same will also hold good in the case of par-

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[a] Aristotle has proved that in each of the three modes a negative conclusion is impossible; he now adds that the corresponding affirmatives are also impossible (*sc.* because an affirmative conclusion can only be drawn from two affirmative premisses).

[b] *i.e.*, if the minor premiss is apodeictic. The problematic premiss is originally negative, but becomes affirmative by conversion.

[c] By the examples just cited.

38 b 25 ὅταν μὲν γὰρ ᾖ τὸ στερητικὸν καθόλου τε καὶ ἀναγκαῖον, ἀεὶ συλλογισμὸς ἔσται καὶ τοῦ ἐνδέχεσθαι καὶ τοῦ μὴ ὑπάρχειν (ἀπόδειξις δὲ διὰ τῆς ἀντιστροφῆς), ὅταν δὲ τὸ καταφατικόν, οὐδέποτε· τὸν αὐτὸν γὰρ τρόπον δειχθήσεται ὃν καὶ ἐν τοῖς καθόλου, καὶ διὰ τῶν αὐτῶν ὅρων.

30 Οὐδ' ὅταν ἀμφότεραι ληφθῶσι καταφατικαί· καὶ γὰρ τούτου ἡ αὐτὴ ἀπόδειξις ἣ καὶ πρότερον.

Ὅταν δὲ ἀμφότεραι μὲν στερητικαὶ καθόλου δὲ καὶ ἀναγκαία ἡ τὸ μὴ ὑπάρχειν σημαίνουσα, δι' αὐτῶν μὲν τῶν εἰλημμένων οὐκ ἔσται τὸ ἀναγκαῖον, ἀντιστραφείσης δὲ τῆς κατὰ τὸ ἐνδέχεσθαι
35 προτάσεως ἔσται συλλογισμός, καθάπερ ἐν τοῖς πρότερον.

Ἐὰν δ' ἀμφότεραι ἀδιόριστοι ἢ ἐν μέρει τεθῶσιν, οὐκ ἔσται συλλογισμός· ἀπόδειξις δ' ἡ αὐτὴ καὶ διὰ τῶν αὐτῶν ὅρων.

Φανερὸν οὖν ἐκ τῶν εἰρημένων ὅτι τῆς μὲν στερητικῆς τῆς καθόλου τιθεμένης ἀναγκαίας ἀεὶ
40 γίγνεται συλλογισμός, οὐ μόνον τοῦ ἐνδέχεσθαι μὴ ὑπάρχειν ἀλλὰ καὶ τοῦ μὴ ὑπάρχειν, τῆς δὲ καταφατικῆς οὐδέποτε· καὶ ὅτι τὸν αὐτὸν τρόπον
39 a ἐχόντων ἔν τε τοῖς ἀναγκαίοις καὶ ἐν τοῖς ὑπάρχουσι γίγνεταί τε καὶ οὐ γίγνεται συλλογισμός. δῆλον δὲ καὶ ὅτι πάντες ἀτελεῖς οἱ συλλογισμοί, καὶ ὅτι τελειοῦνται διὰ τῶν προειρημένων σχημάτων.

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[a] A fallacy; *cf.* notes on 36 a 15, 38 a 24.

[b] 38 a 26–b 4.

[c] 38 b 13-23.

[d] *Cf.* 36 b 12-18.

[e] *Cf.* 36 a 15, 38 a 24, b 26.

[f] Actually by the first figure only.

ticular syllogisms. When the negative statement is universal and apodeictic, a syllogism will always result to give both a problematic and a negative assertoric [a] conclusion (the proof will proceed by conversion); but when the affirmative statement is universal and apodeictic, there will never be a syllogism. The proof will be effected in the same way as in universal syllogisms, and by means of the same terms.[b]

Nor will there be a syllogism when both premisses are taken as affirmative. The proof of this also is the same as before.[c]

When, however, both premisses are negative, and that which has the non-attributive sense is universal and apodeictic, although there will be no necessary conclusion from the assumptions as they are, when the problematic premiss is converted there will be a syllogism, as before.

If, however, both premisses are assumed as indefinite or particular, there will be no syllogism. The proof is the same as before, and is effected by means of the same terms.[d]

General deductions.

Thus it is evident from the foregoing analysis (*a*) that when the negative universal premiss is taken as apodeictic a syllogism always results, giving not only a conclusion of the negative problematic type but also one of the negative assertoric type,[e] but when the affirmative universal premiss is so taken a syllogism never results; (*b*) that a syllogism results or does not result from the same arrangement of terms in apodeictic as in assertoric propositions. It is obvious also that all these syllogisms are imperfect, and that they are completed by means of the figures [f] already mentioned.

39 a

XX. Ἐν δὲ τῷ τελευταίῳ σχήματι καὶ ἀμφοτέρων ἐνδεχομένων καὶ τῆς ἑτέρας ἔσται συλλογισμός. ὅταν μὲν οὖν ἐνδέχεσθαι σημαίνωσιν αἱ προτάσεις, καὶ τὸ συμπέρασμα ἔσται ἐνδεχόμενον· καὶ ὅταν ἡ μὲν ἐνδέχεσθαι ἡ δ' ὑπάρχειν. ὅταν δ' ἡ ἑτέρα τεθῇ ἀναγκαία, ἐὰν μὲν ᾖ καταφατική, οὐκ ἔσται τὸ συμπέρασμα οὔτε ἀναγκαῖον οὔθ' ὑπάρχον, ἐὰν δ' ᾖ στερητική, τοῦ μὴ ὑπάρχειν ἔσται συλλογισμός, καθάπερ καὶ ἐν τοῖς πρότερον. ληπτέον δὲ καὶ ἐν τούτοις ὁμοίως τὸ ἐν τοῖς συμπεράσμασιν ἐνδεχόμενον.

Ἔστωσαν δὴ πρῶτον ἐνδεχόμεναι, καὶ τὸ Α καὶ τὸ Β παντὶ τῷ Γ ἐνδεχέσθω ὑπάρχειν. ἐπεὶ οὖν ἀντιστρέφει τὸ καταφατικὸν ἐπὶ μέρους τὸ δὲ Β παντὶ τῷ Γ ἐνδέχεται, καὶ τὸ Γ τινὶ τῷ Β ἐνδέχοιτ' ἄν· ὥστ' εἰ τὸ μὲν Α παντὶ τῷ Γ ἐνδέχεται τὸ δὲ Γ τινὶ τῶν Β, καὶ τὸ Α τινὶ τῶν Β ἐνδέχεται· γίγνεται γὰρ τὸ πρῶτον σχῆμα. καὶ εἰ τὸ μὲν Α ἐνδέχεται μηδενὶ τῷ Γ ὑπάρχειν τὸ δὲ Β παντὶ τῷ Γ, ἀνάγκη τὸ Α τινὶ τῷ Β ἐνδέχεσθαι μὴ ὑπάρχειν· ἔσται γὰρ πάλιν τὸ πρῶτον σχῆμα διὰ τῆς ἀντιστροφῆς. εἰ δ' ἀμφότεραι στερητικαὶ τεθείησαν, ἐξ αὐτῶν μὲν τῶν εἰλημμένων οὐκ ἔσται τὸ ἀναγκαῖον, ἀντιστραφεισῶν δὲ τῶν προτάσεων ἔσται συλλογισμός, καθάπερ ἐν τοῖς πρότερον. εἰ γὰρ τὸ Α καὶ τὸ Β τῷ Γ ἐνδέχεται μὴ ὑπάρχειν, ἐὰν μεταληφθῇ τὸ ἐνδέχεσθαι μὴ[1] ὑπάρχειν, πάλιν ἔσται τὸ πρῶτον σχῆμα διὰ τῆς ἀντιστροφῆς.

Εἰ δ' ὁ μέν ἐστι καθόλου τῶν ὅρων ὁ δ' ἐν μέρει, τὸν αὐτὸν τρόπον ἐχόντων τῶν ὅρων ὅνπερ ἐπὶ

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[1] μὴ n: om. cett.

Third Figure. General remarks.

XX. In the last figure when both premisses are problematic, and also when only one is problematic, there will be a syllogism. When both the premisses have a problematic sense the conclusion will also be problematic, and likewise when one premiss is problematic and the other assertoric. When, however, the other premiss is apodeictic, if it is affirmative, the conclusion will be neither apodeictic nor assertoric; but if it is negative, there will be a negative assertoric conclusion, as before.[a] In these syllogisms also the sense of 'possibility' in the conclusions must be understood in the same way as before.[b]

A. Both premisses problematic. (1) Universal syllogisms.

First, then, let the premisses be problematic, and let both A and B possibly apply to all C. Then since the affirmative statement is convertible as particular, and since B may apply to all C, C may also apply to some B. Thus if A may apply to all C, and C to some B, A may also apply to some B; for we get the first figure. And if A may apply to no C, and B may apply to all C, it necessarily follows that A may not apply to some B; for again we shall have the first figure by conversion. But supposing that both premisses are assumed as negative, there will be no necessary conclusion from the assumptions as they stand, but when the premisses are converted there will be a syllogism, as before; for if both A and B may not apply to C, if we substitute in each case the expression 'may apply,' we shall have the first figure again by conversion.

(2) Particular syllogisms.

If one of the terms is universal and the other particular, there will or will not be a syllogism with

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[a] *Cf.* 36 a 15, 38 a 24, b 26, 40.
[b] 33 b 30, 34 b 27, 35 b 32, 36 b 33.

τοῦ ὑπάρχειν ἔσται τε καὶ οὐκ ἔσται συλλογισμός. ἐνδεχέσθω γὰρ τὸ μὲν Α παντὶ τῷ Γ τὸ δὲ Β τινὶ τῷ Γ ὑπάρχειν· ἔσται δὴ πάλιν τὸ πρῶτον σχῆμα τῆς ἐν μέρει προτάσεως ἀντιστραφείσης· εἰ γὰρ τὸ Α παντὶ τῷ Γ τὸ δὲ Γ τινὶ τῶν Β, τὸ Α τινὶ τῶν Β ἐνδέχεται. καὶ εἰ πρὸς τῷ[1] ΒΓ τεθείη τὸ καθόλου, ὡσαύτως. ὁμοίως δὲ καὶ εἰ τὸ μὲν ΑΓ στερητικὸν εἴη τὸ δὲ ΒΓ καταφατικόν· ἔσται γὰρ πάλιν τὸ πρῶτον σχῆμα διὰ τῆς ἀντιστροφῆς.

Εἰ δ' ἀμφότεραι στερητικαὶ τεθείησαν, ἡ μὲν καθόλου ἡ δ' ἐν μέρει, δι' αὐτῶν μὲν τῶν εἰλημμένων οὐκ ἔσται συλλογισμός, ἀντιστραφεισῶν δ' ἔσται, καθάπερ ἐν τοῖς πρότερον.

Ὅταν δὲ ἀμφότεραι ἀδιόριστοι ἢ ἐν μέρει ληφθῶσιν οὐκ ἔσται συλλογισμός· καὶ γὰρ παντὶ ἀνάγκη τὸ Α τῷ Β καὶ μηδενὶ ὑπάρχειν. ὅροι τοῦ ὑπάρχειν ζῷον—ἄνθρωπος—λευκόν, τοῦ μὴ ὑπάρχειν ἵππος—ἄνθρωπος—λευκόν, μέσον λευκόν.

XXI. Ἐὰν δὲ ἡ μὲν ὑπάρχειν ἡ δ' ἐνδέχεσθαι σημαίνῃ τῶν προτάσεων, τὸ μὲν συμπέρασμα ἔσται ὅτι ἐνδέχεται καὶ οὐχ ὅτι ὑπάρχει, συλλογισμὸς δ' ἔσται τὸν αὐτὸν τρόπον ἐχόντων τῶν ὅρων ὃν καὶ ἐν τοῖς πρότερον. ἔστωσαν γὰρ πρῶτον κατηγορικοί, καὶ τὸ μὲν Α παντὶ τῷ Γ ὑπαρχέτω τὸ δὲ Β παντὶ ἐνδεχέσθω ὑπάρχειν. ἀντιστραφέντος οὖν τοῦ ΒΓ τὸ πρῶτον ἔσται σχῆμα, καὶ τὸ συμπέρασμα ὅτι ἐνδέχεται τὸ Α τινὶ τῶν Β ὑπάρχειν· ὅτε γὰρ ἡ ἑτέρα τῶν προ-

[1] τῷ] τὸ Cdfn.

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a Cf. 28 b 5—29 a 6.

the same arrangement of terms as in assertoric syllogisms.[a] Let it be assumed that A may apply to all C, and B to some C. Then by the conversion of the particular premiss we shall again have the first figure; for if A may apply to all C, and C to some B, then A may apply to some B. The same will be true if the universal statement relates to the premiss BC. Similarly also if the premiss AC is negative and BC affirmative; for conversion will again give us the first figure.

If both premisses are assumed as negative, the one universal and the other particular, there will be no conclusion from the assumptions as they stand, but on their conversion we shall have a syllogism, as before.

When, however, both premisses are taken as indefinite or particular, there will be no syllogism; for A necessarily applies both to none and to all of B.[b] Examples of terms where the predicate applies to the subject are animal—man—white; where it does not apply, horse—man—white. White is the middle term.

B. One assertoric and one problematic premiss. (1) Both premisses universal.

XXI. If one of the premisses has an assertoric and the other a problematic sense, the conclusion will be problematic, not assertoric, and a syllogism will result from the same arrangement of terms as in the previous examples.[c] First let the terms be positive: let A apply to all C, and let B possibly apply to all C. Then the conversion of the premiss BC will give us the first figure, and the conclusion that A may apply to some B; for we have seen[d]

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[b] *i.e.* terms can be found (as in the examples which follow) to exhibit both these relations.

[c] In ch. xx.

[d] 33 b 25-40.

τάσεων ἐν τῷ πρώτῳ σχήματι σημαίνοι ἐνδέχεσθαι, καὶ τὸ συμπέρασμα ἦν ἐνδεχόμενον. ὁμοίως δὲ καὶ εἰ τὸ μὲν ΒΓ ὑπάρχειν τὸ δὲ ΑΓ ἐνδέχεσθαι, καὶ εἰ τὸ μὲν ΑΓ στερητικὸν τὸ δὲ ΒΓ κατηγορικόν, ὑπάρχοι δ' ὁποτερονοῦν, ἀμφοτέρως ἐνδεχόμενον ἔσται τὸ συμπέρασμα· γίγνεται γὰρ πάλιν τὸ πρῶτον σχῆμα, δέδεικται δ' ὅτι τῆς ἑτέρας προτάσεως ἐνδέχεσθαι σημαινούσης ἐν αὐτῷ καὶ τὸ συμπέρασμα ἔσται ἐνδεχόμενον. εἰ δὲ τὸ [ἐνδεχόμενον][1] στερητικὸν τεθείη πρὸς τὸ ἔλαττον ἄκρον ἢ καὶ ἄμφω ληφθείη στερητικά, δι' αὐτῶν μὲν τῶν κειμένων οὐκ ἔσται συλλογισμός, ἀντιστραφέντων δ' ἔσται, καθάπερ ἐν τοῖς πρότερον.

Εἰ δ' ἡ μὲν καθόλου τῶν προτάσεων ἡ δ' ἐν μέρει, κατηγορικῶν μὲν οὐσῶν ἀμφοτέρων ἢ τῆς μὲν καθόλου στερητικῆς τῆς δ' ἐν μέρει καταφατικῆς, ὁ αὐτὸς τρόπος ἔσται τῶν συλλογισμῶν· πάντες γὰρ περαίνονται διὰ τοῦ πρώτου σχήματος· ὥστε φανερὸν ὅτι τοῦ ἐνδέχεσθαι καὶ οὐ τοῦ ὑπάρχειν ἔσται ὁ[2] συλλογισμός. εἰ δ' ἡ μὲν καταφατικὴ καθόλου ἡ δὲ στερητικὴ ἐν μέρει, διὰ τοῦ ἀδυνάτου ἔσται ἡ ἀπόδειξις. ὑπαρχέτω γὰρ τὸ μὲν Β παντὶ τῷ Γ, τὸ δὲ Α ἐνδεχέσθω τινὶ τῷ Γ μὴ ὑπάρχειν· ἀνάγκη δὴ τὸ Α ἐνδέχεσθαι τινὶ τῷ Β μὴ ὑπάρχειν. εἰ γὰρ παντὶ τῷ Β τὸ Α ὑπάρχει ἐξ ἀνάγκης τὸ δὲ Β παντὶ τῷ Γ κεῖται ὑπάρχειν, τὸ Α παντὶ τῷ Γ ἐξ ἀνάγκης ὑπάρξει (τοῦτο γὰρ δέδεικται πρότερον)· ἀλλ' ὑπέκειτο τινὶ ἐνδέχεσθαι μὴ ὑπάρχειν.

Ὅταν δ' ἀδιόριστοι ἢ ἐν μέρει ληφθῶσιν ἀμφότεραι, οὐκ ἔσται συλλογισμός. ἀπόδειξις δ' ἡ

that when one of the premisses in the first figure has a problematic sense, the conclusion is also problematic. Similarly too if BC is assertoric and AC problematic; or if AC is negative and BC affirmative, and either is assertoric: in both cases the conclusion will be problematic, for again we get the first figure, and it has been shown that in it when one of the premisses is problematic in sense the conclusion will also be problematic. If, however, the negative problematic statement is attached to the minor term, or if both statements are taken as negative, no syllogism will result from the assumptions as they stand, but on their conversion there will be a syllogism, as before.

(2) One premiss particular

If one of the premisses is universal and the other particular, when both are affirmative, or when the universal is negative and the particular affirmative, the syllogisms will be effected in the same way; for all the conclusions are reached by means of the first figure. Hence it is evident that the conclusion will be problematic, not assertoric. If, however, the affirmative premiss is universal and the negative particular, the proof will be *per impossibile*. Let B apply to all C, and let A possibly not apply to some C. Then it necessarily follows that A may not apply to some B. For if A necessarily applies to all B, and B is still assumed to apply to all C, A will necessarily apply to all C; for this has been proved already.[a] But it was assumed that it may not apply to some.

When both premisses are taken as indefinite or particular, there will be no syllogism. The proof

[a] 30 a 15-23.

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[1] om. n, comm., Waitz.
[2] ὁ om. AC Bekker.

40 a αὐτὴ ἣ καὶ ἐν τοῖς καθόλου, καὶ διὰ τῶν αὐτῶν ὅρων.

XXII. Εἰ δ' ἐστὶν ἡ μὲν ἀναγκαία τῶν προτά-
5 σεων ἡ δ' ἐνδεχομένη, κατηγορικῶν μὲν ὄντων τῶν ὅρων ἀεὶ τοῦ ἐνδέχεσθαι ἔσται συλλογισμός, ὅταν δ' ᾖ τὸ μὲν κατηγορικὸν τὸ δὲ στερητικόν, ἐὰν μὲν ᾖ τὸ καταφατικὸν ἀναγκαῖον, τοῦ ἐνδέχεσθαι μὴ ὑπάρχειν, ἐὰν δὲ τὸ στερητικόν, καὶ τοῦ ἐνδέχεσθαι μὴ ὑπάρχειν καὶ τοῦ μὴ ὑπάρχειν· τοῦ δ' ἐξ
10 ἀνάγκης μὴ ὑπάρχειν οὐκ ἔσται συλλογισμός, ὥσπερ οὐδ' ἐν τοῖς ἑτέροις σχήμασιν.

Ἔστωσαν δὴ κατηγορικοὶ πρῶτον οἱ ὅροι, καὶ τὸ μὲν Α παντὶ τῷ Γ ὑπαρχέτω ἐξ ἀνάγκης, τὸ δὲ Β [τῷ Γ][1] παντὶ ἐνδεχέσθω ὑπάρχειν. ἐπεὶ οὖν τὸ μὲν Α παντὶ τῷ Γ ἀνάγκη, τὸ δὲ Γ τινὶ τῷ
15 Β ἐνδέχεται, καὶ τὸ Α τινὶ τῷ Β ἐνδεχόμενον ἔσται καὶ οὐχ ὑπάρχον· οὕτω γὰρ συνέπιπτεν ἐπὶ τοῦ πρώτου σχήματος. ὁμοίως δὲ δειχθήσεται καὶ εἰ τὸ μὲν ΒΓ τεθείη ἀναγκαῖον τὸ δὲ ΑΓ ἐνδεχόμενον.

Πάλιν ἔστω τὸ μὲν κατηγορικὸν τὸ δὲ στερητικόν, ἀναγκαῖον δὲ τὸ κατηγορικόν, καὶ τὸ μὲν
20 Α ἐνδεχέσθω μηδενὶ τῶν[2] Γ ὑπάρχειν τὸ δὲ Β παντὶ ὑπαρχέτω ἐξ ἀνάγκης. ἔσται δὴ πάλιν τὸ πρῶτον σχῆμα, καὶ [γὰρ][3] ἡ στερητικὴ πρότασις ἐνδέχεσθαι σημαίνει· φανερὸν οὖν ὅτι τὸ συμπέρασμα ἔσται ἐνδεχόμενον· ὅτε γὰρ οὕτως ἔχοιεν αἱ προτάσεις ἐν τῷ πρώτῳ σχήματι, καὶ τὸ συμπέρασμα
25 ἦν ἐνδεχόμενον.

Εἰ δ' ἡ στερητικὴ πρότασις ἀναγκαία, τὸ συμ-

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[1] τῷ Γ om. BCdfu: habent post παντὶ nm.

[2] τῶν] τῷ Cmu.

[3] γὰρ seclusi.

is the same as in the case of universal syllogisms,[a] and is obtained by means of the same terms.

XXII. If one of the premisses is apodeictic and the other problematic, when the terms are positive the conclusion will always be problematic; but when one is positive and the other negative, if the affirmative statement is apodeictic, the conclusion will be negative and problematic, but if the negative statement is apodeictic the conclusion will be negative problematic and negative assertoric[b]; there will be no negative apodeictic conclusion, just as there was none in the other figures.

C. One apodeictic and one problematic premiss.

Thus let the terms first be positive, and let A necessarily apply to all C, and B possibly apply to all C. Then since A must apply to all C, and C may apply to some B, A will also apply, in a problematic and not in an assertoric sense, to some B; for we have seen[c] that this is the consequence in the first figure. The proof will be similar also if the premiss BC be assumed as apodeictic and AC as problematic.

(1) Both premisses universal.
(*a*) Both premisses affirmative.

Next, let one statement be affirmative and the other negative, the affirmative being apodeictic; and let A possibly apply to no C, and B necessarily apply to all C. Then we shall again have the first figure; and the negative premiss has the problematic sense. Thus it is evident that the conclusion will be problematic; for we saw[d] that when the premisses are in this relation in the first figure the conclusion is also problematic.

(*b*) One affirmative and one negative premiss.

If, however, the negative premiss is apodeictic,

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[a] No such proof appears in the passage indicated (39 b 6-25), but the reference there (ll. 9-10) to the terms of the preceding chapter shows that Aristotle had in mind the section 39 b 2-6.

[b] *Cf.* 40 a 30-32 *infra.*

[c] 35 b 38—36 a 1.

[d] 36 a 17-25.

40 a
πέρασμα ἔσται καὶ ὅτι ἐνδέχεταί τινι μὴ ὑπάρχειν
καὶ ὅτι οὐχ ὑπάρχει. κείσθω γὰρ τὸ Α τῷ Γ μὴ
ὑπάρχειν ἐξ ἀνάγκης, τὸ δὲ Β παντὶ ἐνδέχεσθαι.
ἀντιστραφέντος οὖν τοῦ ΒΓ καταφατικοῦ τὸ πρῶ-
30 τον ἔσται σχῆμα, καὶ ἀναγκαία ἡ στερητικὴ πρό-
τασις. ὅτε δ' οὕτως εἶχον αἱ προτάσεις, συνέβαινε
τὸ Α τῷ Γ καὶ ἐνδέχεσθαι τινὶ μὴ ὑπάρχειν καὶ μὴ
ὑπάρχειν, ὥστε καὶ τὸ Α τῷ Β ἀνάγκη τινὶ μὴ
ὑπάρχειν. ὅταν δὲ τὸ στερητικὸν τεθῇ πρὸς τὸ
ἔλαττον ἄκρον, ἐὰν μὲν ἐνδεχόμενον, ἔσται συλ-
35 λογισμὸς μεταληφθείσης τῆς προτάσεως, καθάπερ
ἐν τοῖς πρότερον, ἐὰν δ' ἀναγκαῖον, οὐκ ἔσται· καὶ
γὰρ παντὶ ἀνάγκη καὶ οὐδενὶ ἐνδέχεται ὑπάρχειν.
ὅροι τοῦ παντὶ ὑπάρχειν ὕπνος—ἵππος καθεύδων—
ἄνθρωπος, τοῦ μηδενὶ ὕπνος—ἵππος ἐγρηγορώς—
ἄνθρωπος.

Ὁμοίως δὲ ἕξει καὶ εἰ ὁ μὲν καθόλου τῶν ὅρων
40 ὁ δ' ἐν μέρει πρὸς τὸ μέσον· κατηγορικῶν μὲν γὰρ
40 b ὄντων ἀμφοτέρων τοῦ ἐνδέχεσθαι καὶ οὐ τοῦ
ὑπάρχειν ἔσται συλλογισμός, καὶ ὅταν τὸ μὲν
στερητικὸν ληφθῇ τὸ δὲ καταφατικόν, ἀναγκαῖον
δὲ τὸ καταφατικόν. ὅταν δὲ τὸ στερητικὸν ἀναγ-
καῖον, καὶ τὸ συμπέρασμα ἔσται τοῦ μὴ ὑπάρχειν·
5 ὁ γὰρ αὐτὸς τρόπος ἔσται τῆς δείξεως καὶ καθόλου
καὶ μὴ καθόλου τῶν ὅρων ὄντων· ἀνάγκη γὰρ διὰ
τοῦ πρώτου σχήματος τελειοῦσθαι τοὺς συλλο-
γισμούς, ὥστε καθάπερ ἐν ἐκείνοις, καὶ ἐπὶ τούτων
ἀναγκαῖον συμπίπτειν. ὅταν δὲ τὸ στερητικὸν
καθόλου ληφθὲν τεθῇ πρὸς τὸ ἔλαττον ἄκρον, ἐὰν

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[a] 36 a 33, where see note.

[b] Sc. in the present example.

there will be not merely a negative particular problematic but a negative particular assertoric conclusion. For let us assume that A necessarily does not apply to C, and that B may apply to all C. Then the conversion of the affirmative premiss BC will give the first figure, and the negative premiss is apodeictic. But we saw[a] that when the premisses are in this relation it follows not merely that A may not apply but that A does not apply to some C; and so it must also follow[b] that A does not apply to some B. When, however, the negative statement refers to the minor term, if it is problematic there will be a syllogism after substitution of the premiss,[c] as before; but if the statement is apodeictic there will be no syllogism; for A both must apply to all B and must apply to none. Terms to illustrate the former relation are sleep—sleeping horse—man; to illustrate the latter, sleep—waking horse—man.

(2) One premiss particular.

The same principle will also apply if one of the ⟨extreme⟩ terms is in a universal and the other in a particular relation to the middle term. If both statements are affirmative the conclusion will be problematic and not assertoric; and also when one is taken as negative and the other as affirmative, the latter being apodeictic. When, however, the negative statement is apodeictic, the conclusion will be negative and assertoric; for the proof will take the same form whether the terms are universal or not, because the syllogisms must be completed by means of the first figure, and so the result must be the same in these as in the former examples.[d] When, however, the negative statement, taken as universal, refers to the

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[c] *i.e.* the corresponding affirmative premiss.

[d] *Cf.* 40 a 25.

40 b μὲν ἐνδεχόμενον, ἔσται συλλογισμὸς διὰ τῆς ἀντιστροφῆς, ἐὰν δ' ἀναγκαῖον, οὐκ ἔσται. δειχθήσεται δὲ τὸν αὐτὸν τρόπον ὃν καὶ ἐν τοῖς καθόλου, καὶ διὰ τῶν αὐτῶν ὅρων.

Φανερὸν οὖν καὶ ἐν τούτῳ τῷ σχήματι πότε καὶ πῶς ἔσται συλλογισμός, καὶ πότε τοῦ ἐνδέχεσθαι καὶ πότε τοῦ ὑπάρχειν. δῆλον δὲ καὶ ὅτι πάντες ἀτελεῖς, καὶ ὅτι τελειοῦνται διὰ τοῦ πρώτου σχήματος.

XXIII. Ὅτι μὲν οὖν οἱ ἐν τούτοις τοῖς σχήμασι συλλογισμοὶ τελειοῦνται διὰ τῶν ἐν τῷ πρώτῳ σχήματι καθόλου συλλογισμῶν καὶ εἰς τούτους ἀνάγονται, δῆλον ἐκ τῶν εἰρημένων· ὅτι δ' ἁπλῶς πᾶς συλλογισμὸς οὕτως ἕξει, νῦν ἔσται φανερόν, ὅταν δειχθῇ πᾶς γιγνόμενος διὰ τούτων τινὸς τῶν σχημάτων.

Ἀνάγκη δὴ πᾶσαν ἀπόδειξιν καὶ πάντα συλλογισμὸν ἢ ὑπάρχον τι ἢ μὴ ὑπάρχον δεικνύναι, καὶ τοῦτο ἢ καθόλου ἢ κατὰ μέρος, ἔτι ἢ δεικτικῶς ἢ ἐξ ὑποθέσεως· τοῦ δ' ἐξ ὑποθέσεως μέρος τὸ διὰ τοῦ ἀδυνάτου. πρῶτον οὖν εἴπωμεν περὶ τῶν δεικτικῶν· τούτων γὰρ δειχθέντων φανερὸν ἔσται καὶ ἐπὶ τῶν εἰς τὸ ἀδύνατον καὶ ὅλως τῶν ἐξ ὑποθέσεως.

Εἰ δὴ δέοι τὸ Α κατὰ τοῦ Β συλλογίσασθαι ἢ ὑπάρχον ἢ μὴ ὑπάρχον, ἀνάγκη λαβεῖν τι κατά τινος. εἰ μὲν οὖν τὸ Α κατὰ τοῦ Β ληφθείη, τὸ ἐξ ἀρχῆς ἔσται εἰλημμένον. εἰ δὲ κατὰ τοῦ Γ, τὸ δὲ

minor term, if it is problematic, there will be a syllogism by conversion ; but if it is apodeictic, there will be no syllogism. The proof will be effected in the same way as in the universal syllogisms, and by means of the same terms.

Thus it is evident, in this figure also, when and in what circumstances there will be a syllogism, and when this will be problematic and when assertoric. It is also clear that the syllogisms are all imperfect, and that they are completed by means of the first figure.

All syllogisms are effected by the three figures.

XXIII. It is evident, then, from the foregoing analysis that the syllogisms in this figure are completed by means of the universal syllogisms in the first figure, and are reducible to them. This holds good of every syllogism without exception, as will at once be evident when it has been shown that every syllogism is effected by means of one of these figures.

Ostensive and hypothetical proofs.

Now every demonstration and every syllogism must prove that some attribute does or does not apply to some subject, and that either universally or in a particular sense. Further, the proof must be either ostensive or hypothetical. One kind of hypothetical proof is proof *per impossibile*. First, then, let us deal with ostensive proofs ; for when we have shown the conditions which govern these, the facts will also be made clear with regard to proofs by reduction *ad impossibile* and to hypothetical proofs in general.

Ostensive proof requires two premisses.

Supposing, then, that it is required to draw an inference that the predicate A applies or does not apply to the subject B, we must assume some predication of some subject. Now if we assume that A is predicated of B, we shall have a *petitio principii*. If we assume that A is predicated of C, but C is predi-

40 b Γ κατὰ μηδενός, μηδ' ἄλλο κατ' ἐκείνου, μηδὲ
35 κατὰ τοῦ Α ἕτερον, οὐδεὶς ἔσται συλλογισμός· τῷ
γὰρ ἓν καθ' ἑνὸς ληφθῆναι οὐδὲν συμβαίνει ἐξ
ἀνάγκης· ὥστε προσληπτέον καὶ ἑτέραν πρότασιν.

Ἐὰν μὲν οὖν ληφθῇ τὸ Α κατ' ἄλλου ἢ ἄλλο
κατὰ τοῦ Α, ἢ κατὰ τοῦ Γ ἕτερον, εἶναι μὲν συλλογισμὸν
οὐδὲν κωλύει, πρὸς μέντοι τὸ Β οὐκ
40 ἔσται διὰ τῶν εἰλημμένων. οὐδ' ὅταν τὸ Γ ἑτέρῳ,
41 a κἀκεῖνο ἄλλῳ, καὶ τοῦτο ἑτέρῳ, μὴ συνάπτῃ δὲ
πρὸς τὸ Β, οὐδ' οὕτως ἔσται πρὸς τὸ Β συλλογισμός.[1]
ὅλως γὰρ εἴπομεν ὅτι οὐδεὶς οὐδέποτε
ἔσται συλλογισμὸς ἄλλου κατ' ἄλλου μὴ ληφθέντος
τινὸς μέσου, ὃ πρὸς ἑκάτερον ἔχει πως ταῖς κατηγορίαις·
5 ὁ μὲν γὰρ συλλογισμὸς ἁπλῶς ἐκ προτάσεών
ἐστιν, ὁ δὲ πρὸς τόδε συλλογισμὸς ἐκ τῶν
πρὸς τόδε προτάσεων, ὁ δὲ τοῦδε πρὸς τόδε διὰ τῶν
τοῦδε πρὸς τόδε προτάσεων. ἀδύνατον δὲ πρὸς
τὸ Β λαβεῖν πρότασιν μηδὲν μήτε κατηγοροῦντας
αὐτοῦ μήτ' ἀπαρνουμένους, ἢ πάλιν τοῦ Α πρὸς τὸ
10 Β μηδὲν κοινὸν λαμβάνοντας ἀλλ' ἑκατέρου ἴδια
ἄττα κατηγοροῦντας ἢ ἀπαρνουμένους· ὥστε ληπτέον
τι μέσον ἀμφοῖν, ὃ συνάψει τὰς κατηγορίας,
εἴπερ ἔσται τοῦδε πρὸς τόδε συλλογισμός.

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[1] συλλογισμός] συλλογισμὸς τοῦ Α Bfu.

cated of nothing, and no other term is predicated of C, and nothing else is predicated of A, there will be no syllogism; for no necessary conclusion follows from the assumption that one term is predicated of one other term. Hence we must also assume another premiss.

Need for a middle term.

Now if we assume that A is predicated of another term, or another term of A, or some other term of C, there is nothing to prevent a syllogism; but if it proceeds from these assumptions it will have no reference to B. Again, when C is connected to another term, and this to another, and this to yet another, and the series is not connected with B, in this case too we shall have no syllogism with reference to B. For we have stated [a] the general principle that we shall never have any syllogism proving that one term is predicated of another unless some middle term is assumed which is related in some way by predication to each of the other two; for the syllogism in general proceeds from premisses, and the syllogism relating to a given term proceeds from premisses relating to that term, and the syllogism proving the relation of one term to another is obtained by means of premisses which state the relation of one to the other. But it is impossible to obtain a premiss relating to B if we neither assert nor deny anything of B; or again one which states the relation of A to B if we cannot find something common to both, but merely assert or deny certain attributes peculiar to each. Therefore we must take some middle term relating to both, which will link the predications together, if there is to be a syllogism proving the relation of one term to the other.

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[a] 25 b 32.

41 a Εἰ οὖν ἀνάγκη μέν τι λαβεῖν πρὸς ἄμφω κοινόν, τοῦτο δ' ἐνδέχεται τριχῶς (ἢ γὰρ τὸ Α τοῦ Γ καὶ τὸ Γ τοῦ Β κατηγορήσαντας, ἢ τὸ Γ κατ' ἀμφοῖν, ἢ ἄμφω κατὰ τοῦ Γ), ταῦτα δ' ἐστὶ τὰ εἰρημένα σχήματα, φανερὸν ὅτι πάντα συλλογισμὸν ἀνάγκη γίγνεσθαι διὰ τούτων τινὸς τῶν σχημάτων. ὁ γὰρ αὐτὸς λόγος καὶ εἰ διὰ πλειόνων συνάπτοι πρὸς τὸ Β· ταὐτὸ γὰρ ἔσται σχῆμα καὶ ἐπὶ τῶν πολλῶν.

Ὅτι μὲν οὖν οἱ δεικτικοὶ πάντες περαίνονται διὰ τῶν προειρημένων σχημάτων, φανερόν· ὅτι δὲ καὶ οἱ εἰς τὸ ἀδύνατον, δῆλον ἔσται διὰ τούτων. πάντες γὰρ οἱ διὰ τοῦ ἀδυνάτου περαίνοντες τὸ μὲν ψεῦδος συλλογίζονται, τὸ δ' ἐξ ἀρχῆς ἐξ ὑποθέσεως δεικνύουσιν, ὅταν ἀδύνατόν τι συμβαίνῃ τῆς ἀντιφάσεως τεθείσης, οἷον ὅτι ἀσύμμετρος ἡ διάμετρος διὰ τὸ γίγνεσθαι τὰ περιττὰ ἴσα τοῖς ἀρτίοις συμμέτρου τεθείσης. τὸ μὲν οὖν ἴσα γίγνεσθαι τὰ περιττὰ τοῖς ἀρτίοις συλλογίζονται, τὸ δ' ἀσύμμετρον εἶναι τὴν διάμετρον ἐξ ὑποθέσεως δεικνύουσιν, ἐπεὶ ψεῦδος συμβαίνει διὰ τὴν ἀντίφασιν. τοῦτο γὰρ ἦν τὸ διὰ τοῦ ἀδυνάτου συλλογίσασθαι, τὸ δεῖξαί τι ἀδύνατον διὰ τὴν ἐξ ἀρχῆς ὑπόθεσιν. ὥστ' ἐπεὶ τοῦ ψεύδους γίγνεται συλλογισμὸς δεικτικὸς ἐν τοῖς εἰς τὸ ἀδύνατον ἀπαγομένοις, τὸ δ' ἐξ ἀρχῆς ἐξ ὑποθέσεως δείκνυται, τοὺς δὲ δεικτικοὺς πρότερον εἴπομεν ὅτι διὰ τούτων περαίνονται τῶν σχημάτων, φανερὸν ὅτι καὶ οἱ διὰ τοῦ

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[a] For the proof see Euclid, *Elements*, x. app. 27 (Heiberg and Menge).

The different combinations of the three terms give the three figures.

Since, then, we must take some common term which is related to both, and this may be done in three ways, viz., by predicating A of C and C of B, or C of both, or both of C, and these are the figures already described, it is evident that every syllogism must be effected by means of one of these figures; for the same principle will also hold good if A is connected with B by more than one term; the figure will be the same also in the case of several terms.

Procedure of hypothetical proof.

It is evident, then, that ostensive proofs are carried out by means of the figures already described. That proofs by reduction *ad impossibile* are also carried out by their means will be clearly shown by what follows. Everyone who carries out a proof *per impossibile* proves the false conclusion by syllogism and demonstrates the point at issue *ex hypothesi* when an impossible conclusion follows from the assumption of the contradictory proposition. *E.g.*, one proves that the diagonal of a square is incommensurable with the sides by showing that if it is assumed to be commensurable, odd become equal to even numbers.[a] Thus he argues to the conclusion that odd becomes equal to even, and proves *ex hypothesi* that the diagonal is incommensurable, since the contradictory proposition produces a false result. For we saw that to reach a logical conclusion *per impossibile* is to prove some conclusion impossible on account of the original assumption.[b] Therefore since in reduction *ad impossibile* we obtain an ostensive syllogism of falsity (the point at issue being proved *ex hypothesi*), and we have stated above that ostensive syllogisms are effected by means of these figures, it is evident that *per impossi-*

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[b] *i.e.* to show that the contradictory of the required conclusion is incompatible with one of the original premisses.

41 a ἀδυνάτου συλλογισμοὶ διὰ τούτων ἔσονται τῶν σχημάτων. ὡσαύτως δὲ καὶ οἱ ἄλλοι πάντες οἱ ἐξ ὑποθέσεως· ἐν ἅπασι γὰρ ὁ μὲν συλλογισμὸς γίνεται πρὸς τὸ μεταλαμβανόμενον, τὸ δ' ἐξ ἀρχῆς 40
41 b περαίνεται δι' ὁμολογίας ἢ τινος ἄλλης ὑποθέσεως. εἰ δὲ τοῦτ' ἀληθές, πᾶσαν ἀπόδειξιν καὶ πάντα συλλογισμὸν ἀνάγκη γίγνεσθαι διὰ τριῶν τῶν προειρημένων σχημάτων. τούτου δὲ δειχθέντος δῆλον ὡς ἅπας τε συλλογισμὸς ἐπιτελεῖται διὰ τοῦ 5 πρώτου σχήματος καὶ ἀνάγεται εἰς τοὺς ἐν τούτῳ καθόλου συλλογισμούς.

XXIV. Ἔτι τε ἐν ἅπαντι δεῖ κατηγορικόν τινα τῶν ὅρων εἶναι καὶ τὸ καθόλου ὑπάρχειν· ἄνευ γὰρ τοῦ καθόλου ἢ οὐκ ἔσται συλλογισμὸς ἢ οὐ πρὸς τὸ κείμενον, ἢ τὸ ἐξ ἀρχῆς αἰτήσεται. κείσθω γὰρ 10 τὴν μουσικὴν ἡδονὴν εἶναι σπουδαίαν. εἰ μὲν οὖν ἀξιώσειεν ἡδονὴν εἶναι σπουδαίαν, μὴ προσθεὶς τὸ πᾶσαν, οὐκ ἔσται συλλογισμός· εἰ δὲ τινὰ ἡδονήν, εἰ μὲν ἄλλην, οὐδὲν πρὸς τὸ κείμενον, εἰ δ' αὐτὴν ταύτην, τὸ ἐξ ἀρχῆς λαμβάνει.

Μᾶλλον δὲ γίγνεται φανερὸν ἐν τοῖς διαγράμμασιν, 15 οἷον ὅτι τοῦ ἰσοσκελοῦς ἴσαι αἱ πρὸς τῇ βάσει. ἔστωσαν εἰς τὸ κέντρον ἠγμέναι αἱ ΑΒ. εἰ οὖν

bile syllogisms will also be obtained by means of these figures. The same is true of all other hypothetical proofs ; for in every case the syllogism is effected with reference to the substituted proposition, and the required conclusion is reached by means of a concession [a] or some other hypothesis. But if this is true, every demonstration and every syllogism will be effected by means of the three figures already described ; and this being proved, it is obvious that every syllogism is completed by means of the first figure, and is reducible to the universal syllogisms in this figure.

All inferential processes are reducible to the syllogisms of the first figure.

XXIV. Further, in every syllogism one of the terms must be positive,[b] and universality must be involved. Without universality either there will be no syllogism, or the conclusion will be unrelated to the assumption, or there will be *petitio principii.* Suppose that we have to prove that musical enjoyment is commendable. Then if we postulate that enjoyment is commendable, unless ' all ' is prefixed to ' enjoyment,' there will be no syllogism. If we postulate that some enjoyment is commendable, then if it is a different enjoyment, there is no reference to the original assumption ; and if it is the same, there is a *petitio principii.*

In every syllogism (1) at least one premiss must be affirmative; (2) at least one premiss must be universal.

The point can be seen more clearly in the case of geometrical theorems. *E.g.*, take the proposition that the angles adjacent to the base of an isosceles triangle are equal. Let the lines A and B be drawn

Example from Geometry.

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[a] The process referred to belongs rather to dialectic reasoning. One's opponent is induced to concede that the proposition to be proved is true if some other proposition is true ; the latter is then proved syllogistically.

[b] *i.e.* one of the premisses must be affirmative.

41 b ἴσην λαμβάνοι τὴν ΑΓ γωνίαν τῇ ΒΔ μὴ ὅλως
ἀξιώσας ἴσας τὰς τῶν ἡμικυκλίων, καὶ πάλιν τὴν
Γ τῇ Δ μὴ πᾶσαν προσλαβὼν τὴν τοῦ τμήματος,
ἔτι[1] ἀπ' ἴσων οὐσῶν τῶν ὅλων γωνιῶν καὶ ἴσων
20 ἀφῃρημένων ἴσας εἶναι τὰς λοιπὰς τὰς ΕΖ,[2] τὸ ἐξ
ἀρχῆς αἰτήσεται, ἐὰν μὴ λάβῃ ἀπὸ τῶν ἴσων ἴσων
ἀφαιρουμένων ἴσα λείπεσθαι.

Φανερὸν οὖν ὅτι ἐν ἅπαντι δεῖ τὸ καθόλου ὑπάρχειν, καὶ ὅτι τὸ μὲν καθόλου ἐξ ἁπάντων τῶν ὅρων
καθόλου δείκνυται, τὸ δ' ἐν μέρει καὶ οὕτως κἀ-
25 κείνως, ὥστ' ἐὰν μὲν ᾖ τὸ συμπέρασμα καθόλου,
καὶ τοὺς ὅρους ἀνάγκη καθόλου εἶναι, ἐὰν δ' οἱ ὅροι
καθόλου, ἐνδέχεται τὸ συμπέρασμα μὴ εἶναι καθόλου. δῆλον δὲ καὶ ὅτι ἐν ἅπαντι συλλογισμῷ ἢ
ἀμφοτέρας ἢ τὴν ἑτέραν πρότασιν ὁμοίαν ἀνάγκη
γίγνεσθαι τῷ συμπεράσματι. λέγω δ' οὐ μόνον
30 τῷ καταφατικὴν εἶναι ἢ στερητικήν, ἀλλὰ καὶ τῷ
ἀναγκαίαν ἢ ὑπάρχουσαν ἢ ἐνδεχομένην. ἐπισκέψασθαι δὲ δεῖ καὶ τὰς ἄλλας κατηγορίας.

Φανερὸν δὲ καὶ ἁπλῶς πότ' ἔσται καὶ πότ' οὐκ

[1] ἔτι δ' C.

[2] τὰς ΕΖ] τὰς πρὸς τοῖς ΕΖ n : τὰς ἐξ d¹ : secl. Waitz.

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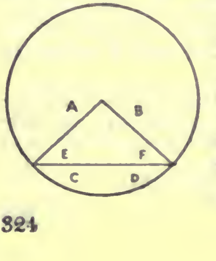
[a] Aristotle seems to imply the figure given here. A and B are radii of a circle; the chord which joins them forms the base, as they form the equal sides, of an isosceles triangle. E and F are the angles (between the radii and the chord) at the base of this triangle. AC and BD are the angles formed by A and B with the circumference (not with the base, as in the Oxford translation), or rather with the tangents to the circumference; similarly C and D are the angles formed by the chord with the circumference. This



to the centre.[a] Then if you assume that ∠AC = ∠BD without postulating generally that the angles of semicircles are equal, and again if you assume that ∠C = ∠D without also assuming that all angles of the same segment are equal, and further if you assume that when equal angles are subtracted from the whole angles the remaining angles E and F are equal, unless you assume ⟨the general principle⟩ that when equals are subtracted from equals the remainders are equal, you will be guilty of *petitio principii.*

Thus it is evident that in every syllogism universality must be involved, and that a universal conclusion can only be proved when all the terms are universal, whereas a particular conclusion can be proved whether the terms are or are not all universal; so that if the conclusion is universal, the terms must also be universal, but if the terms are universal the conclusion may not be universal. It is clear also that in every syllogism one or both of the premisses must be similar to the conclusion; I do not mean merely in being affirmative or negative, but in being apodeictic or assertoric or problematic.[b] We must also take into account the other forms of predication.[c]

(3) At least one premiss must be of the same mode as the conclusion.

It is, however, evident both generally when there

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interpretation of the phrase 'angles of semicircles' or 'of the same segment' is given by all the commentators and is supported by Euclid III. 16. 31. Waitz's interpretation, involving the excision of τὰς EZ in l. 20, is less satisfactory.

[b] This is inconsistent with the view, stated in 38 a 15-25, that an assertoric conclusion may be drawn from one apodeictic and one problematic premiss.

[c] *i.e.* any other form of predication which appears in the conclusion must also appear in at least one premiss.

41 b
ἔσται συλλογισμός, καὶ πότε δυνατὸς καὶ πότε
τέλειος, καὶ ὅτι συλλογισμοῦ ὄντος ἀναγκαῖον ἔχειν
35 τοὺς ὅρους κατά τινα τῶν εἰρημένων τρόπων.

XXV. Δῆλον δὲ καὶ ὅτι πᾶσα ἀπόδειξις ἔσται
διὰ τριῶν ὅρων καὶ οὐ πλειόνων, ἐὰν μὴ δι' ἄλλων
καὶ ἄλλων τὸ αὐτὸ συμπέρασμα γίγνηται, οἷον τὸ Ε
διά τε τῶν ΑΒ καὶ διὰ τῶν ΓΔ, ἢ διὰ τῶν ΑΒ καὶ
40 ΑΓ[1] καὶ ΒΓ (πλείω γὰρ μέσα τῶν αὐτῶν οὐδὲν
42 a εἶναι κωλύει), τούτων δ' ὄντων οὐχ εἷς ἀλλὰ πλείους
εἰσὶν οἱ συλλογισμοί· ἢ πάλιν ὅταν ἑκάτερον τῶν
ΑΒ διὰ συλλογισμοῦ ληφθῇ (οἷον τὸ Α διὰ τῶν
ΔΕ καὶ πάλιν τὸ Β διὰ τῶν ΖΘ), ἢ τὸ μὲν ἐπαγωγῇ,
τὸ δὲ συλλογισμῷ. ἀλλὰ καὶ οὕτως πλείους οἱ
5 συλλογισμοί· πλείω γὰρ τὰ συμπεράσματά ἐστιν,
οἷον τό τε Α καὶ τὸ Β καὶ τὸ Γ. εἰ δ' οὖν μὴ
πλείους ἀλλ' εἷς, οὕτω μὲν ἐνδέχεται γενέσθαι διὰ
πλειόνων τὸ αὐτὸ συμπέρασμα, ὡς δὲ τὸ Γ διὰ
τῶν ΑΒ ἀδύνατον. ἔστω γὰρ τὸ Ε συμπεπερασμένον ἐκ τῶν ΑΒΓΔ. οὐκοῦν ἀνάγκη τι αὐτῶν
10 ἄλλο πρὸς ἄλλο εἰλῆφθαι, τὸ μὲν ὡς ὅλον τὸ δ' ὡς
μέρος· τοῦτο γὰρ δέδεικται πρότερον, ὅτι ὄντος
συλλογισμοῦ ἀναγκαῖον οὕτως τινὰς ἔχειν τῶν
ὅρων. ἐχέτω οὖν τὸ Α οὕτως πρὸς τὸ Β. ἔστιν
ἄρα τι ἐξ αὐτῶν συμπερασμα. οὐκοῦν ἤτοι τὸ Ε
ἢ τῶν ΓΔ θάτερον ἢ ἄλλο τι παρὰ ταῦτα. καὶ εἰ
15 μὲν τὸ Ε, ἐκ τῶν ΑΒ μόνον ἂν εἴη ὁ συλλογισμός.

[1] καὶ ΑΓ supra lineam add. Bu : om. A.

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[a] *Cf.* 28 a 16, note.

[b] *i.e.* as an immediate conclusion from two simple premisses.

[c] 40 b 30.

will and when there will not be a syllogism, and when the syllogism will be valid[a] and when perfect; and that if there is a syllogism the terms must be related in one of the ways already described.

Three terms only are required for demonstration.

XXV. It is clear also that every demonstration will be effected by means of three terms and no more—unless the same conclusion is reached by means of different combinations of terms; *e.g.*, if E is concluded both from the propositions A and B and from the propositions C and D, or from A and B, A and C, and B and C (for there is no reason why there should not be more than one middle between the same terms), but in this case there is not one syllogism but several; or again when each of the propositions A and B is obtained by syllogism (*e.g.*, A by means of D and E, and B by means of F and G), or one by induction and the other by syllogism; but here again there will be several syllogisms, since there are several conclusions, viz., A, B and C. If it be granted that these are not several syllogisms but only one, then the same conclusion can be reached by more than three terms in this way; but it cannot be reached as C is by means of A and B.[b] For let E be the conclusion reached by means of the premisses A, B, C and D. Then some one of these must have been assumed to be related to some other as whole to part; for it has already been shown[c] that where there is a syllogism certain of the terms must be so related.[d] Let A, then, be so related to B. Then there is some conclusion from these premisses; either (1) E, or (2) one of the propositions C and D, or something else apart from these. (1) If it is E, the syllogism could be

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[d] *Sc.* and therefore the premisses must exhibit a similar relation.

42 a τὰ δὲ ΓΔ εἰ μὲν ἔχει οὕτως ὥστ' εἶναι τὸ μὲν ὡς
ὅλον τὸ δ' ὡς μέρος, ἔσται τι καὶ ἐξ ἐκείνων, καὶ
ἤτοι τὸ Ε ἢ τῶν ΑΒ θάτερον ἢ ἄλλο τι παρὰ
20 ταῦτα. καὶ εἰ μὲν τὸ Ε ἢ τῶν ΑΒ θάτερον, ἢ
πλείους ἔσονται οἱ συλλογισμοί, ἢ ὡς ἐνεδέχετο
ταὐτὸ διὰ πλειόνων ὅρων περαίνεσθαι συμβαίνει· εἰ
δ' ἄλλο τι παρὰ ταῦτα, πλείους ἔσονται καὶ ἀσύναπτοι
οἱ συλλογισμοὶ πρὸς ἀλλήλους. εἰ δὲ μὴ
οὕτως ἔχοι τὸ Γ πρὸς τὸ Δ ὥστε ποιεῖν συλλογισμόν,
μάτην ἔσται εἰλημμένα, εἰ μὴ ἐπαγωγῆς
ἢ κρύψεως ἤ τινος ἄλλου τῶν τοιούτων χάριν.

25 Εἰ δ' ἐκ τῶν ΑΒ μὴ τὸ Ε ἀλλ' ἄλλο τι γίγνεται
συμπέρασμα, ἐκ δὲ τῶν ΓΔ ἢ τούτων θάτερον ἢ
ἄλλο παρὰ ταῦτα, πλείους τε οἱ συλλογισμοὶ γίγνονται
καὶ οὐ τοῦ ὑποκειμένου· ὑπέκειτο γὰρ εἶναι τοῦ
Ε τὸν συλλογισμόν. εἰ δὲ μὴ γίγνεται ἐκ τῶν ΓΔ
μηδὲν συμπέρασμα, μάτην τε εἰλῆφθαι αὐτὰ συμβαίνει
30 καὶ μὴ τοῦ ἐξ ἀρχῆς εἶναι τὸν συλλογισμόν·
ὥστε φανερὸν ὅτι πᾶσα ἀπόδειξις καὶ πᾶς συλλογισμὸς
ἔσται διὰ τριῶν ὅρων μόνον.

Τούτου δ' ὄντος φανεροῦ, δῆλον ὡς καὶ ἐκ δύο
προτάσεων καὶ οὐ πλειόνων (οἱ γὰρ τρεῖς ὅροι δύο
προτάσεις), εἰ μὴ προσλαμβάνοιτο, καθάπερ ἐν τοῖς
35 ἐξ ἀρχῆς ἐλέχθη, πρὸς τὴν τελείωσιν τῶν συλλογισμῶν.
φανερὸν οὖν ὡς ἐν ᾧ λόγῳ συλλογι-

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[a] 42 a 6.

[b] *i.e.* by conversion ; 24 b 23.

drawn from A and B alone. And (i.) if C and D are in the relation of whole to part, there will be some conclusion from these too ; either (*a*) E or one of the propositions A and B or (*b*) something else apart from these. (*a*) If it is E or one of the propositions A and B, either there will be more than one syllogism, or it follows that the same conclusion is reached by several terms in the way which we saw[a] to be possible. (*b*) If, however, the conclusion is something else apart from these, there will be several syllogisms which are unconnected with one another. (ii.) If, on the other hand, C is not related to D in such a way as to produce a conclusion, they will have been assumed to no purpose, unless with a view to induction or obscuring the argument or some other such object.

Again, (2) if the conclusion drawn from A and B is not E but something else, and (i.) the conclusion from C and D is either one of the propositions A and B or something else apart from them, more than one syllogism results, and these syllogisms do not prove the required conclusion ; for it was assumed that the syllogism proved E. And (ii.) if no conclusion follows from C and D, it follows that these propositions were assumed to no purpose, and that the syllogism does not prove the original assumption. Hence it is evident that every demonstration and every syllogism will be effected by means of three terms only.

Every syllogism proceeds from two premisses only.

This being evident, it is clear also that every syllogism proceeds from two premisses and no more (for the three terms form two premisses)—unless some further assumption be made, as we said at the beginning, in order to complete the syllogisms.[b] Thus it is evident that if in any syllogistic argument

42 a στικῷ μὴ ἄρτιαί εἰσιν αἱ προτάσεις δι᾿ ὧν γίγνεται τὸ συμπέρασμα τὸ κύριον (ἔνια γὰρ τῶν ἄνωθεν συμπερασμάτων ἀναγκαῖον εἶναι προτάσεις), οὗτος ὁ λόγος ἢ οὐ συλλελόγισται ἢ πλείω τῶν ἀναγκαίων ἠρώτηκε πρὸς τὴν θέσιν.

42 b Κατὰ μὲν οὖν τὰς κυρίας προτάσεις λαμβανομένων τῶν συλλογισμῶν, ἅπας ἔσται συλλογισμὸς ἐκ προτάσεων μὲν ἀρτίων ἐξ ὅρων δὲ περιττῶν· ἑνὶ γὰρ πλείους οἱ ὅροι τῶν προτάσεων. ἔσται δὲ καὶ τὰ συμπεράσματα ἡμίση τῶν προτάσεων. ὅταν δὲ διὰ προσυλλογισμῶν περαίνηται ἢ διὰ πλειόνων μέσων [μὴ][1] συνεχῶν (οἷον τὸ ΑΒ διὰ τῶν ΓΔ), τὸ μὲν πλῆθος τῶν ὅρων ὡσαύτως ἑνὶ ὑπερέξει τὰς προτάσεις (ἢ γὰρ ἔξωθεν ἢ εἰς τὸ μέσον τεθήσεται ὁ παρεμπίπτων ὅρος, ἀμφοτέρως δὲ συμβαίνει ἑνὶ ἐλάττω εἶναι τὰ διαστήματα τῶν ὅρων, αἱ δὲ προτάσεις ἴσαι τοῖς διαστήμασιν), οὐ μέντοι ἀεὶ αἱ μὲν ἄρτιαι ἔσονται οἱ δὲ περιττοί, ἀλλ᾿ ἐναλλάξ, ὅταν μὲν αἱ προτάσεις ἄρτιαι, περιττοὶ οἱ ὅροι, ὅταν δ᾿ οἱ ὅροι ἄρτιοι, περιτταὶ αἱ προτάσεις (ἅμα γὰρ τῷ ὅρῳ μία προστίθεται πρότασις, ἂν ὁποθενοῦν προστεθῇ ὁ ὅρος), ὥστ᾿ ἐπεὶ αἱ μὲν ἄρτιαι οἱ δὲ περιττοὶ ἦσαν, ἀνάγκη παραλλάττειν τῆς αὐτῆς προσθέσεως γιγνομένης. τὰ δὲ συμπεράσματα οὐκέτι τὴν αὐτὴν ἕξει τάξιν οὔτε πρὸς τοὺς ὅρους οὔτε πρὸς τὰς προτάσεις· ἑνὸς γὰρ ὅρου προστιθεμένου συμπεράσματα προστεθήσεται ἑνὶ ἐλάττω τῶν προϋπαρχόντων ὅρων· πρὸς μόνον γὰρ τὸν

[1] μὴ om. n, secl. Waitz.

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[a] As in sorites.

[b] *Sc.* in the simple syllogism.

the premisses by which the conclusion proper is reached (I say 'proper' because some of the earlier conclusions must necessarily be premisses) are not even in number, then this argument either has not been proved syllogistically or has postulated more premisses than are necessary for proving the hypothesis.

Thus if syllogisms are considered with respect to their premisses properly so called, every syllogism will consist of an even number of premisses and an odd number of terms; for the terms are one more than the premisses. Moreover, the conclusions will be half as many as the premisses. But when the conclusion is reached by means of prosyllogisms or of several consecutive middle terms[a] (*e.g.*, the conclusion AB by means of the terms C and D), the number of the terms will exceed that of the premisses, as before, by one (for each further term which is introduced will be added either externally or intermediately to the sequence, and in either case it follows that the intervals are one fewer than the terms, and there are as many premisses as intervals); the former will not, however, always be even and the latter odd, but alternately when the premisses are even the terms will be odd, and when the terms are even the premisses will be odd; for wherever a term is added one premiss is added as well. Thus since the premisses were[b] even and the terms odd, their numbers must change accordingly when the same addition is made to both. But the conclusions will no longer preserve the same numerical relation either to the terms or to the premisses; for the addition of one term will increase the number of conclusions by one less than the original number of terms, since it will form con-

Prosyllogisms and sorites.

42 b ἔσχατον οὐ ποιεῖ συμπέρασμα, πρὸς δὲ τοὺς ἄλλους
πάντας, οἷον εἰ τῷ ΑΒΓ πρόσκειται τὸ Δ, εὐθὺς
καὶ συμπεράσματα δύο πρόσκειται, τό τε πρὸς τὸ
Α καὶ τὸ πρὸς τὸ Β. ὁμοίως δὲ κἀπὶ τῶν ἄλλων.
κἂν εἰς τὸ μέσον δὲ παρεμπίπτῃ, τὸν αὐτὸν τρόπον·
25 πρὸς ἕνα γὰρ μόνον οὐ ποιήσει συλλογισμόν. ὥστε
πολὺ πλείω τὰ συμπεράσματα καὶ τῶν ὅρων ἔσται
καὶ τῶν προτάσεων.

XXVI. Ἐπεὶ δ' ἔχομεν περὶ ὧν οἱ συλλογισμοί,
καὶ ποῖον ἐν ἑκάστῳ σχήματι καὶ ποσαχῶς δείκνυται,
φανερὸν ἡμῖν ἐστὶ καὶ ποῖον πρόβλημα
30 χαλεπὸν καὶ ποῖον εὐεπιχείρητον· τὸ μὲν γὰρ ἐν
πλείοσι σχήμασι καὶ διὰ πλειόνων πτώσεων περαινόμενον
ῥᾷον, τὸ δ' ἐν ἐλάττοσι καὶ δι' ἐλαττόνων
δυσεπιχειρητότερον.

Τὸ μὲν οὖν καταφατικὸν τὸ καθόλου διὰ τοῦ
πρώτου σχήματος δείκνυται μόνου, καὶ διὰ τούτου
μοναχῶς· τὸ δὲ στερητικὸν διά τε τοῦ πρώτου καὶ
35 διὰ τοῦ μέσου, καὶ διὰ μὲν τοῦ πρώτου μοναχῶς, διὰ
δὲ τοῦ μέσου διχῶς· τὸ δ' ἐν μέρει καταφατικὸν διὰ
τοῦ πρώτου καὶ διὰ τοῦ ἐσχάτου, μοναχῶς μὲν
διὰ τοῦ πρώτου, τριχῶς δὲ διὰ τοῦ ἐσχάτου. τὸ δὲ
στερητικὸν τὸ κατὰ μέρος ἐν ἅπασι τοῖς σχήμασι
δείκνυται, πλὴν ἐν μὲν τῷ πρώτῳ ἅπαξ, ἐν δὲ τῷ
40 μέσῳ καὶ τῷ ἐσχάτῳ ἐν τῷ μὲν διχῶς ἐν τῷ δὲ
τριχῶς.

43 a Φανερὸν οὖν ὅτι τὸ καθόλου κατηγορικὸν κατασκευάσαι
μὲν χαλεπώτατον, ἀνασκευάσαι δὲ ῥᾷστον.
ὅλως δ' ἐστὶν ἀναιροῦντι μὲν τὰ καθόλου τῶν

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[a] Barbara.
[b] Celarent.
[c] Cesare and Camestres.
[d] Darii.

clusions with all the terms except the last. *E.g.*, if the term D is added to the terms A, B and C, two further conclusions are added *ipso facto*, viz., those which are given by the relation of D severally to A and B. Similarly too in all other cases. And even if the term be introduced intermediately, the same principle holds; for the term will form a conclusion with all the rest but one. Thus there will be many more conclusions than either terms or premisses.

Relative ease and difficulty of proving different types of proposition

XXVI. Now that we understand the scope of the syllogism, and what sort of proof can be obtained in each figure and in how many ways, it is also evident to us what kind of proposition is difficult and what is easy to deal with; for that which is concluded in more figures and by more moods is easier, while that which is concluded in fewer figures and by fewer moods is harder to deal with.

The universal affirmative is proved only by the first figure, and by this in one[a] mood only; but the negative is proved both by the first and by the middle figure: by the first in one[b] and by the middle in two[c] moods. The particular affirmative is proved by the first and the last figures: by the first in one[d] and by the last in three[e] moods. The particular negative is proved in all three figures, with this difference, that in the first figure it is proved in one[f] mood, while in the second and third it is proved respectively in two[g] and in three[h] moods.

Thus it is evident that the universal affirmative is the hardest to establish and the easiest to overthrow. In general, universal propositions are more open to

[e] Darapti, Disamis and Datisi.

[f] Ferio.

[g] Festino, Baroco.

[h] Felapton, Bocardo and Ferison.

ἐν μέρει ῥᾷω· καὶ γὰρ ἣν μηδενὶ καὶ ἥν τινι μὴ ὑπάρχῃ ἀνῄρηται· τούτων δὲ τὸ μὲν τινὶ μὴ ἐν ἅπασι τοῖς σχήμασι δείκνυται, τὸ δὲ μηδενὶ ἐν τοῖς δυσίν. τὸν αὐτὸν δὲ τρόπον κἀπὶ τῶν στερητικῶν· καὶ γὰρ εἰ παντὶ καὶ εἴ τινι, ἀνῄρηται τὸ ἐξ ἀρχῆς· τοῦτο δ' ἦν ἐν δύο σχήμασιν. ἐπὶ δὲ τῶν ἐν μέρει μοναχῶς, ἢ παντὶ ἢ μηδενὶ δείξαντα ὑπάρχειν. κατασκευάζοντι δὲ ῥᾴω τὰ ἐν μέρει· καὶ γὰρ ἐν πλείοσι σχήμασι καὶ διὰ πλειόνων τρόπων.

Ὅλως τε οὐ δεῖ λανθάνειν ὅτι ἀνασκευάσαι μὲν δι' ἀλλήλων ἔστι καὶ τὰ καθόλου διὰ τῶν ἐν μέρει καὶ ταῦτα διὰ τῶν καθόλου, κατασκευάσαι δ' οὐκ ἔστι διὰ τῶν κατὰ μέρος τὰ καθόλου, δι' ἐκείνων δὲ ταῦτ' ἔστιν. ἅμα δὲ δῆλον ὅτι καὶ τὸ ἀνασκευάζειν ἐστὶ τοῦ κατασκευάζειν ῥᾷον.

Πῶς μὲν οὖν γίγνεται πᾶς συλλογισμὸς καὶ διὰ πόσων ὅρων καὶ προτάσεων, καὶ πῶς ἐχουσῶν πρὸς ἀλλήλας, ἔτι δὲ ποῖον πρόβλημα ἐν ἑκάστῳ σχήματι καὶ ποῖον ἐν πλείοσι καὶ ποῖον ἐν ἐλάττοσι δείκνυται, δῆλον ἐκ τῶν εἰρημένων.

XXVII. Πῶς δὲ εὐπορήσομεν αὐτοὶ πρὸς τὸ τιθέμενον ἀεὶ συλλογισμῶν, καὶ διὰ ποίας ὁδοῦ ληψόμεθα τὰς περὶ ἕκαστον ἀρχάς, νῦν ἤδη λεκτέον·

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[a] 42 b 35.

[b] In chs. xxiii.-xxvi.

[c] *i.e.* the premisses; *cf.* 43 b 36.

refutation than particular ones ; for the proposition is refuted not only if the predicate applies to none, but also if it does not apply to some of the subject, and of these alternatives the latter can be proved in all three figures, and the former in two of them. Similarly in the case of negative propositions ; for the hypothesis is refuted not only if the predicate applies to all but also if it applies to some of the subject, and we have seen [a] that this can be proved in two figures. But in particular propositions the refutation can only be effected in one way, by showing that the predicate applies to all, or to none. For constructive purposes, however, particular propositions are easier, since they can be proved in more figures and by more moods.

We must not fail to observe the general principle that whereas propositions can be *overthrown* reciprocally, the universal by the particular and the particular by the universal, universal propositions cannot be *established* by means of particular ones, although the latter can be established by means of the former. At the same time it is obvious also that it is easier to overthrow a proposition than to establish it.

The foregoing analysis [b] clearly shows how every syllogism is effected, and by means of how many terms and premisses, and how these are related one to another ; and also what kind of proposition is proved in each figure, and what kind is proved in more and what kind in fewer figures.

Construction of syllogisms.

XXVII. We must next proceed to describe how we ourselves shall find an adequate supply of syllogisms to meet any given problem, and by what method we shall apprehend the starting-points [c] appropriate to each problem ; for presumably we

43 a
οὐ γὰρ μόνον ἴσως δεῖ τὴν γένεσιν θεωρεῖν τῶν
συλλογισμῶν, ἀλλὰ καὶ τὴν δύναμιν ἔχειν τοῦ
ποιεῖν.

25 Ἁπάντων δὴ τῶν ὄντων τὰ μέν ἐστι τοιαῦτα
ὥστε κατὰ μηδενὸς ἄλλου κατηγορεῖσθαι ἀληθῶς
καθόλου (οἷον Κλέων καὶ Καλλίας καὶ τὸ καθ'
ἕκαστον καὶ αἰσθητόν), κατὰ δὲ τούτων ἄλλα (καὶ
γὰρ ἄνθρωπος καὶ ζῷον ἑκάτερος τούτων ἐστί)· τὰ
30 δ' αὐτὰ μὲν κατ' ἄλλων κατηγορεῖται, κατὰ δὲ
τούτων ἄλλα πρότερον οὐ κατηγορεῖται· τὰ δὲ καὶ
αὐτὰ ἄλλων καὶ αὐτῶν ἕτερα, οἷον ἄνθρωπος
Καλλίου καὶ ἀνθρώπου ζῷον. ὅτι μὲν οὖν ἔνια τῶν
ὄντων κατ' οὐδενὸς πέφυκε λέγεσθαι δῆλον· τῶν
γὰρ αἰσθητῶν σχεδὸν ἕκαστόν ἐστι τοιοῦτον ὥστε
μὴ κατηγορεῖσθαι κατὰ μηδενός, πλὴν ὡς κατὰ
35 συμβεβηκός· φαμὲν γάρ ποτε τὸ λευκὸν ἐκεῖνο
Σωκράτην εἶναι καὶ τὸ προσιὸν Καλλίαν. ὅτι δὲ
καὶ ἐπὶ τὸ ἄνω πορευομένοις ἵσταταί ποτε, πάλιν
ἐροῦμεν· νῦν δ' ἔστω τοῦτο κείμενον. κατὰ μὲν οὖν
τούτων οὐκ ἔστιν ἀποδεῖξαι κατηγορούμενον ἕτερον,
πλὴν εἰ μὴ κατὰ δόξαν, ἀλλὰ ταῦτα κατ' ἄλλων·
40 οὐδὲ τὰ καθ' ἕκαστα κατ' ἄλλων ἀλλ' ἕτερα κατ'
ἐκείνων. τὰ δὲ μεταξὺ δῆλον ὡς ἀμφοτέρως ἐνδέχεται·
καὶ γὰρ αὐτὰ κατ' ἄλλων καὶ ἄλλα κατὰ
τούτων λεχθήσεται, καὶ σχεδὸν οἱ λόγοι καὶ αἱ
σκέψεις εἰσὶ μάλιστα περὶ τούτων.

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[a] *An. Post.* I. xix.-xxii.

should not merely speculate about the formation of syllogisms, but also possess the capacity to construct them.

Three classes of predicables.

Now all existing things either (1) are such that they cannot be truly predicated in a universal sense of anything else (*e.g.*, Cleon and Callias and anything which is individual and sensible), but other attributes can be so predicated of them (for each of the two examples just quoted is a man and an animate being); or (2) are predicated of other things, but other things are not first predicated of them; or (3) both are themselves predicated of other things and have other things predicated of them (as 'man' is predicated of Callias and 'animal' of man). Thus it is obvious that some things are naturally predicable of nothing, for broadly speaking every sensible thing is such that it cannot be predicated of anything—except in an accidental sense; for we sometimes say 'That white thing is Socrates' or 'That which is approaching is Callias.' We shall explain elsewhere [a] that there is also an upward limit to the process of predication; for the present let this be taken as assumed. It cannot be demonstrated, then, that anything else is predicated of this class of things, except by way of opinion; but they are predicated of other things. Individuals, on the other hand, are not predicated of other things, but other things are predicated of them. Things which are intermediate between universals and individuals, however, clearly admit of both processes; for they both are predicated of other things and have other things predicated of them. It is with this class of things, broadly speaking, that arguments and inquiries are chiefly concerned.

43 b Δεῖ δὴ τὰς προτάσεις περὶ ἕκαστον οὕτως ἐκλαμβάνειν, ὑποθέμενον αὐτὸ πρῶτον καὶ τοὺς ὁρισμούς τε καὶ ὅσα ἴδια τοῦ πράγματός ἐστιν, εἶτα μετὰ τοῦτο ὅσα ἕπεται τῷ πράγματι, καὶ πάλιν οἷς τὸ πρᾶγμα ἀκολουθεῖ, καὶ ὅσα μὴ ἐνδέχεται αὐτῷ ὑπάρχειν· οἷς δ' αὐτὸ μὴ ἐνδέχεται οὐκ ἐκληπτέον, διὰ τὸ ἀντιστρέφειν τὸ στερητικόν. διαιρετέον δὲ καὶ τῶν ἑπομένων ὅσα τε ἐν τῷ τί ἐστι καὶ ὅσα ὡς ἴδια καὶ ὅσα ὡς συμβεβηκότα κατηγορεῖται, καὶ τούτων ποῖα δοξαστικῶς καὶ ποῖα κατ' ἀλήθειαν· ὅσῳ μὲν γὰρ ἂν πλειόνων τοιούτων εὐπορῇ τις, θᾶττον ἐντεύξεται συμπεράσματι, ὅσῳ δ' ἂν ἀληθεστέρων, μᾶλλον ἀποδείξει.

Δεῖ δ' ἐκλέγειν μὴ τὰ ἑπόμενα τινί, ἀλλ' ὅσα ὅλῳ τῷ πράγματι ἕπεται, οἷον μὴ τί τινὶ ἀνθρώπῳ ἀλλὰ τί παντὶ ἀνθρώπῳ ἕπεται· διὰ γὰρ τῶν καθόλου προτάσεων ὁ συλλογισμός. ἀδιορίστου μὲν οὖν ὄντος ἄδηλον εἰ καθόλου ἡ πρότασις, διωρισμένου δὲ φανερόν. ὁμοίως δ' ἐκλεκτέον καὶ οἷς αὐτὸ ἕπεται ὅλοις, διὰ τὴν εἰρημένην αἰτίαν. αὐτὸ δὲ τὸ ἑπόμενον οὐ ληπτέον ὅλον ἕπεσθαι, λέγω δ' οἷον ἀνθρώπῳ πᾶν ζῷον ἢ μουσικῇ πᾶσαν ἐπιστήμην, ἀλλὰ μόνον ἁπλῶς ἀκολουθεῖν, καθάπερ καὶ προτεινόμεθα· καὶ γὰρ ἄχρηστον θάτερον καὶ ἀδύνατον, οἷον πάντα ἄνθρωπον εἶναι πᾶν ζῷον ἢ δικαιοσύνην

Method of finding premisses by selecting consequents and antecedents.

Now we must select the premisses connected with each problem in the following manner. We must set down (1) the subject itself, its definitions and all its properties, (2) all the concepts which are consequents of the subject, (3) the concepts of which the subject is a consequent, and (4) the attributes which cannot apply to the subject. We need not select the concepts to which it cannot apply, because the negative premiss is convertible. We must also distinguish among these consequents those which are included in the essence, those which are predicated as properties, and those which are predicated as accidents; and of these we must distinguish those which are supposedly from those which are really associated with the subject, for the greater our supply of the latter, the sooner we shall arrive at a conclusion, and the truer they are, the more convincing will be our proof.

We must select consequents not of some part but of the whole of the subject, *e.g.*, not those of some individual man, but those of every man; for it is from universal premisses that the syllogism proceeds. Thus when a statement is indefinite it is uncertain whether the premiss is universal, but when the statement is definite this is quite clear. Similarly we must select only those concepts of the whole of which the subject is a consequent, for the reason just stated. But we must not assume that the consequent is consequent as a whole; I mean, *e.g.*, that all 'animal' is a consequent of 'man,' or all 'scientific knowledge' of 'music,' but only that it is a consequent, without qualification; as indeed we express it in a proposition; the other form of expression (*e.g.*, 'every man is every animal' or 'probity is all good') is

43 b ἅπαν ἀγαθόν· ἀλλ' ᾧ ἕπεται, ἐπ' ἐκείνου τὸ παντὶ
λέγεται.

Ὅταν δ' ὑπό τινος περιέχηται τὸ ὑποκείμενον ᾧ
τὰ ἑπόμενα δεῖ λαβεῖν, τὰ μὲν τῷ καθόλου ἑπόμενα
25 ἢ μὴ ἑπόμενα οὐκ ἐκλεκτέον ἐν τούτοις (εἴληπται
γὰρ ἐν ἐκείνοις· ὅσα γὰρ ζῴῳ καὶ ἀνθρώπῳ ἕπεται,
καὶ ὅσα μὴ ὑπάρχει ὡσαύτως), τὰ δὲ περὶ ἕκαστον
ἴδια ληπτέον· ἔστι γὰρ ἄττα τῷ εἴδει ἴδια παρὰ τὸ
γένος· ἀνάγκη γὰρ τοῖς ἑτέροις εἴδεσιν ἴδια ἄττα
ὑπάρχειν.

Οὐδὲ δὴ τῷ καθόλου ἐκλεκτέον οἷς ἕπεται τὸ
30 περιεχόμενον, οἷον ζῴῳ οἷς ἕπεται ἄνθρωπος·
ἀνάγκη γάρ, εἰ ἀνθρώπῳ ἀκολουθεῖ τὸ ζῷον, καὶ
τούτοις ἅπασιν ἀκολουθεῖν. οἰκειότερα δὲ ταῦτα
τῆς τοῦ ἀνθρώπου ἐκλογῆς.

Ληπτέον δὲ καὶ τὰ ὡς ἐπὶ τὸ πολὺ ἑπόμενα καὶ
οἷς ἕπεται· τῶν γὰρ ὡς ἐπὶ τὸ πολὺ προβλημάτων
35 καὶ ὁ συλλογισμὸς ἐκ τῶν ὡς ἐπὶ τὸ πολὺ προτάσεων,
ἢ πασῶν ἢ τινῶν· ὅμοιον γὰρ ἑκάστου τὸ
συμπέρασμα ταῖς ἀρχαῖς.

Ἔτι τὰ πᾶσιν ἑπόμενα οὐκ ἐκλεκτέον· οὐ γὰρ
ἔσται συλλογισμὸς ἐξ αὐτῶν· δι' ἣν δ' αἰτίαν ἐν τοῖς
ἑπομένοις ἔσται δῆλον.

XXVIII. Κατασκευάζειν μὲν οὖν βουλομένοις

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[a] That it is useless (for purposes of argument) is probably true; but it is recognized as possible in modern logic.

[b] Literally 'starting-points.'

[c] *i.e.* of both major and minor terms. This would give a syllogism in the second figure with two affirmative premisses, from which no conclusion follows.

[d] 44 b 20.

useless and impossible.[a] It is to the antecedent that ' all ' or ' every ' is attached.

When the subject whose consequents we have to apprehend is included in some wider term, we must not select the consequents or non-consequents of the universal in dealing with the particular (for they have been apprehended already in considering the universal, for the consequents of ' animal ' are consequents of ' man,' and similarly with non-consequents), but we must apprehend the consequents which are peculiar to the individual. For there are some properties which are peculiar to the species apart from the genus, since the other species must also have some properties peculiar to them.

Nor again should we in the case of the universal term select the antecedents of the subordinate term ; *e.g.*, in the case of ' animal ' we should not select the antecedents of ' man,' for if ' animal ' is a consequent of ' man,' it must be a consequent of all these concepts as well. They belong more properly, however, to the selection of concepts associated with the term ' man.'

We must also apprehend those concepts which are usually consequents of our subject, and those of which it is usually a consequent ; for the syllogism of propositions about the usual is also drawn from premisses which are usually true, either all or some of them ; for the conclusion of every syllogism is similar to its original premisses.[b]

Further, we must not select concepts which are consequents of all[c] the terms, because they will not produce a syllogism. Why this is so will be clear presently.[d]

XXVIII. When we wish to establish a proposition

κατά τινος ὅλου τοῦ μὲν κατασκευαζομένου βλεπτέον εἰς τὰ ὑποκείμενα, καθ' ὧν αὐτὸ τυγχάνει λεγόμενον, οὗ δὲ δεῖ κατηγορεῖσθαι, ὅσα τούτῳ ἕπεται· ἂν γάρ τι τούτων ᾖ ταὐτόν, ἀνάγκη θάτερον θατέρῳ ὑπάρχειν. ἦν δὲ μὴ ὅτι παντὶ ἀλλ' ὅτι τινί, οἷς ἕπεται ἑκάτερον· εἰ γάρ τι τούτων ταὐτόν, ἀνάγκη τινὶ ὑπάρχειν. ὅταν δὲ μηδενὶ δέῃ ὑπάρχειν, ᾧ[1] μὲν οὐ δεῖ ὑπάρχειν, εἰς τὰ ἑπόμενα, ὃ δὲ δεῖ μὴ ὑπάρχειν,[2] εἰς ἃ μὴ ἐνδέχεται αὐτῷ παρεῖναι· ἢ ἀνάπαλιν, ᾧ μὲν δεῖ μὴ ὑπάρχειν, εἰς[3] ἃ μὴ ἐνδέχεται αὐτῷ παρεῖναι, ὃ δὲ μὴ ὑπάρχειν, εἰς τὰ ἑπόμενα. τούτων γὰρ ὄντων τῶν αὐτῶν ὁποτερωνοῦν, οὐδενὶ ἐνδέχεται θατέρῳ θάτερον ὑπάρχειν· γίγνεται γὰρ ὁτὲ μὲν ὁ ἐν τῷ πρώτῳ σχήματι συλλογισμός, ὁτὲ δ' ὁ ἐν τῷ μέσῳ. ἐὰν δὲ τινὶ μὴ ὑπάρχειν, ᾧ μὲν δεῖ μὴ ὑπάρχειν, οἷς ἕπεται, ὃ δὲ μὴ ὑπάρχειν, ἃ μὴ δυνατὸν αὐτῷ ὑπάρχειν· εἰ γάρ τι τούτων εἴη ταὐτόν, ἀνάγκη τινὶ μὴ ὑπάρχειν.

Μᾶλλον δ' ἴσως ὧδ' ἔσται τῶν λεγομένων ἕκαστον φανερόν. ἔστω γὰρ τὰ μὲν ἑπόμενα τῷ Α ἐφ' ὧν Β, οἷς δ' αὐτὸ ἕπεται ἐφ' ὧν Γ, ἃ δὲ μὴ ἐνδέχεται αὐτῷ ὑπάρχειν ἐφ' ὧν Δ· πάλιν δὲ τῷ Ε τὰ μὲν ὑπάρχοντα ἐφ' οἷς Ζ, οἷς δ' αὐτὸ ἕπεται ἐφ' οἷς Η, ἃ δὲ μὴ ἐνδέχεται αὐτῷ ὑπάρχειν ἐφ' οἷς Θ. εἰ μὲν οὖν ταὐτό τι ἔσται τῶν Γ τινὶ τῶν Ζ, ἀνάγκη τὸ Α

[1] ᾧ] ὃ m, Waitz.

[2] εἰς τὰ ἑπόμενα, ὃ δὲ δεῖ μὴ ὑπάρχειν om. Waitz, habent codd., sed ᾧ δὲ pro ὃ δὲ A^1.

[3] εἰς om. AB^1Cdu.

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[a] Barbara. [b] Darapti. [c] Cesare. [d] Camestres.

[e] By converting the major premiss in Cesare or the minor in Camestres. [f] Felapton.

about a subject as a whole, we must consider (1) the subjects of which the predicate which we are trying to establish is actually asserted, and (2) the consequents of the subject whose predicate we are required to establish; for if there is anything which is common to both classes, then the predicate must apply to the subject.[a] If we are trying to establish that it applies not to all but to some, we must consider the antecedents of both terms; for if anything is common to both classes, then one term must apply to some of the other.[b] When it is required that one term shall apply to none of the other, we must consider the consequents of the subject, and the attributes which cannot belong to the predicate,[c] or conversely we must consider the attributes which cannot belong to the subject and the consequents of the predicate[d]; for if any term is the same in both series, the predicate term cannot apply to any of the subject; for a syllogism results sometimes in the first[e] and sometimes in the middle figure. If it is required that one term shall not apply to some of the other, we must consider the antecedents of the subject and the attributes which cannot apply to the predicate; for if anything is common to these two classes, it must follow that the predicate does not apply to some of the subject.[f]

How to apply the method of selection to particular problems.

Perhaps the several rules stated above will be clearer if we express them in the following manner. Let the consequents of A be designated by B, the antecedents of A by C, and the attributes which cannot apply to A by D; again, let the attributes of E be designated by F, the antecedents of E by G, and the attributes which cannot apply to E by H. Then (1) if any of the Cs is the same as any of the Fs,

Summary of the foregoing rules.

44 a
παντὶ τῷ Ε ὑπάρχειν· τὸ μὲν γὰρ Ζ παντὶ τῷ Ε,
τὸ δὲ Γ παντὶ τῷ Α, ὥστε παντὶ τῷ Ε τὸ Α. εἰ
20 δὲ τὸ Γ καὶ τὸ Η ταὐτόν, ἀνάγκη τινὶ τῶν Ε τὸ Α
ὑπάρχειν· τῷ μὲν γὰρ Γ τὸ Α, τῷ δὲ Η τὸ Ε παντὶ
ἀκολουθεῖ. εἰ δὲ τὸ Ζ καὶ τὸ Δ ταὐτόν, οὐδενὶ
τῶν Ε τὸ Α ὑπάρξει ἐκ προσυλλογισμοῦ· ἐπεὶ γὰρ
ἀντιστρέφει τὸ στερητικὸν καὶ τὸ Ζ τῷ Δ ταὐτόν,
οὐδενὶ τῶν Ζ ὑπάρξει τὸ Α, τὸ δὲ Ζ παντὶ τῷ Ε.
25 πάλιν εἰ τὸ Β καὶ τὸ Θ ταὐτόν, οὐδενὶ τῶν Ε τὸ Α
ὑπάρξει· τὸ γὰρ Β τῷ μὲν Α παντί, τῷ[1] δ' ἐφ' ᾧ
τὸ Ε οὐδενὶ ὑπάρξει· ταὐτὸ γὰρ ἦν τῷ Θ, τὸ δὲ Θ
οὐδενὶ τῶν Ε ὑπῆρχεν. εἰ δὲ τὸ Δ καὶ τὸ Η ταὐτόν,
τὸ Α τινὶ τῶν Ε οὐχ ὑπάρξει· τῷ γὰρ Η οὐχ
30 ὑπάρξει, ὅτι οὐδὲ τῷ Δ· τὸ δὲ Η ἐστὶν ὑπὸ τὸ Ε,
ὥστε τινὶ τῶν Ε οὐχ ὑπάρξει. εἰ δὲ τῷ Η τὸ Β
ταὐτόν, ἀντεστραμμένος ἔσται συλλογισμός· τὸ μὲν
γὰρ Ε[2] τῷ Α ὑπάρξει παντί—τὸ γὰρ Β τῷ Α, τὸ δὲ
Ε τῷ Β (ταὐτὸ γὰρ ἦν τῷ Η)· τὸ δὲ Α τῷ Ε παντὶ
μὲν οὐκ ἀνάγκη ὑπάρχειν, τινὶ δ' ἀνάγκη διὰ τὸ
35 ἀντιστρέφειν τῇ καθόλου κατηγορίᾳ τὴν κατὰ μέρος.

Φανερὸν οὖν ὅτι εἰς τὰ προειρημένα βλεπτέον
ἑκατέρου καθ' ἕκαστον πρόβλημα· διὰ τούτων γὰρ
ἅπαντες οἱ συλλογισμοί. δεῖ δὲ καὶ τῶν ἑπομένων,
καὶ οἷς ἕπεται ἕκαστον, εἰς τὰ πρῶτα καὶ τὰ καθό-
40 λου μάλιστα βλέπειν, οἷον τοῦ μὲν Ε μᾶλλον εἰς
44 b τὸ ΚΖ ἢ εἰς τὸ Ζ μόνον, τοῦ δὲ Α εἰς τὸ ΚΓ ἢ εἰς
τὸ Γ μόνον. εἰ μὲν γὰρ τῷ ΚΖ ὑπάρχει τὸ Α, καὶ
τῷ Ζ καὶ τῷ Ε ὑπάρχει· εἰ δὲ τούτῳ μὴ ἕπεται,

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[1] τῷ corr. Af; τὸ Bdun.

[2] Ε AB^{2}Cd^{2}n^2 : Η B^{1}d^{1}fmn^1.

A must apply to all E; for F applies to all E, and C applies to all A, so that A applies to all E. (2) If C and G are the same, A must apply to some E. For A is a consequent of all C, and E of all G. (3) If F and D are the same, by a prosyllogism A will apply to no E; for since the negative proposition is convertible, and F is the same as D, A will apply to no F; but F applies to all E. (4) Again, if B and H are the same, A will apply to no E; for B will apply to all A, but to no E; for B is *ex hypothesi* the same as H, and we assumed that H applies to no E. (5) If D and G are the same, A will not apply to some E. For it will not apply to G, inasmuch as it does not apply to D. But G falls under E, and so A will not apply to some E. (6) If B is the same as G, there will be a syllogism by conversion. For E will apply to all A, since B applies to A and E to B (since B is *ex hypothesi* the same as G). It does not necessarily follow, however, that A applies to all E, but only that it applies to some, because the universal is convertible into a particular statement.

Terms should be considered in their most universal form.

Thus it is evident that in the proving of every proposition we must consider the foregoing relations of subject and predicate; for it is by these that all syllogisms are determined. Moreover we must consider especially those of the consequents and antecedents of each term which are primary and universal; *e.g.*, in the case of E we must consider KF rather than F alone, and in the case of A we must consider KC rather than C alone.[a] For if A applies to KF it applies both to F and to E, but if it is not a consequent of the latter, it may still be a consequent of F.

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[a] KF and KC are universals which include F and C respectively.

44 b

ἐγχωρεῖ τῷ Ζ ἕπεσθαι. ὁμοίως δὲ καὶ ἐφ' ὧν αὐτὸ ἀκολουθεῖ σκεπτέον· εἰ μὲν γὰρ τοῖς πρώτοις, καὶ τοῖς ὑπ' ἐκεῖνα ἕπεται, εἰ δὲ μὴ τούτοις, ἀλλὰ τοῖς ὑπὸ ταῦτα ἐγχωρεῖ.

Δῆλον δὲ καὶ ὅτι διὰ τῶν τριῶν ὅρων καὶ τῶν δύο προτάσεων ἡ σκέψις, καὶ διὰ τῶν προειρημένων σχημάτων οἱ συλλογισμοὶ πάντες. δείκνυται γὰρ ὑπάρχειν μὲν παντὶ τῷ Ε τὸ Α, ὅταν τῶν Γ καὶ Ζ ταὐτόν τι ληφθῇ. τοῦτο δ' ἔσται μέσον, ἄκρα δὲ τὸ Α καὶ Ε· γίγνεται οὖν τὸ πρῶτον σχῆμα. τινὶ δέ, ὅταν τὸ Γ καὶ τὸ Η ληφθῇ ταὐτόν· τοῦτο δὲ τὸ ἔσχατον σχῆμα, μέσον γὰρ τὸ Η γίγνεται. μηδενὶ δέ, ὅταν τὸ Δ καὶ τὸ Ζ ταὐτόν. οὕτω δὲ καὶ τὸ πρῶτον σχῆμα καὶ τὸ μέσον, τὸ μὲν πρῶτον ὅτι οὐδενὶ τῷ Ζ ὑπάρχει τὸ Α, εἴπερ ἀντιστρέφει τὸ στερητικόν, τὸ δὲ Ζ παντὶ τῷ Ε, τὸ δὲ μέσον ὅτι τὸ Δ τῷ μὲν Α οὐδενὶ τῷ δὲ Ε παντὶ ὑπάρχει. τινὶ δὲ μὴ ὑπάρχειν, ὅταν τὸ Δ καὶ τὸ Η ταὐτὸν ᾖ. τοῦτο δὲ τὸ ἔσχατον σχῆμα· τὸ μὲν γὰρ Α οὐδενὶ τῷ Η ὑπάρξει, τὸ δὲ Ε παντὶ τῷ Η.

Φανερὸν οὖν ὅτι διὰ τῶν προειρημένων σχημάτων οἱ συλλογισμοὶ πάντες, καὶ ὅτι οὐκ ἐκλεκτέον ὅσα πᾶσιν ἕπεται, διὰ τὸ μηδένα γίγνεσθαι συλλογισμὸν ἐξ αὐτῶν. κατασκευάζειν μὲν γὰρ ὅλως οὐκ ἦν ἐκ τῶν ἑπομένων, ἀποστερεῖν δ' οὐκ ἐνδέχεται διὰ τοῦ πᾶσιν ἑπομένου· δεῖ γὰρ τῷ μὲν ὑπάρχειν τῷ δὲ μὴ ὑπάρχειν.

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[a] *Cf.* 43 b 36.

[b] 27 a 18, b 23.

[c] *i.e.* from two affirmative premisses which state the middle

Similarly we must observe the antecedents of the term in question; for if it is a consequent of those which are primary, so it is also of the terms which fall under these; but if it is not a consequent of the former, it may still be so of the latter.

The metho of selectio proceeds b the ordinar rules of syllogism.

It is clear also that our inquiry is carried out by means of the three terms and two premisses, and that all the syllogisms are effected by means of the three figures already described. For it is proved (1) that A applies to all E when one of the Cs is taken as identical with one of the Fs. This will be the middle term, and the extremes will be A and E. Thus the first figure results. (2) That A applies to some E when C and G are taken as identical. This is the last figure; for G becomes the middle term. (3) That A applies to no E when D and F are identical. In this case we get both the first and the middle figure; the first because A applies to no F (the negative proposition being converted) and F applies to all E, and the middle figure because D applies to no A but to all E. (4) That A does not apply to some E when D and G are identical. This is the last figure, for A will apply to no G and E will apply to all G.

Consequents alone are useless for proving a syllogism.

Thus it is evident that all syllogisms are effected by means of the figures already described, and that we must not select consequents of all the terms,[a] because no syllogism results from these. For we saw[b] that there is no way at all of establishing a proposition from consequents,[c] while on the other hand refutation is impossible by means of a common consequent, because it should apply to one term but not to the other.[d]

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as a common consequent of both the extreme terms (second figure).

[d] *Sc.* to give a negative conclusion.

Φανερὸν δὲ καὶ ὅτι αἱ ἄλλαι σκέψεις τῶν κατὰ τὰς ἐκλογὰς ἀχρεῖοι πρὸς τὸ ποιεῖν συλλογισμόν, οἷον εἰ τὰ ἑπόμενα ἑκατέρῳ ταὐτά ἐστιν, ἢ εἰ οἷς ἕπεται τὸ Α καὶ ἃ μὴ ἐνδέχεται τῷ Ε, ἢ ὅσα πάλιν μὴ ἐγχωρεῖ ἑκατέρῳ ὑπάρχειν· οὐ γὰρ γίγνεται συλλογισμὸς διὰ τούτων. εἰ μὲν γὰρ τὰ ἑπόμενα ταὐτά, οἷον τὸ Β καὶ τὸ Ζ, τὸ μέσον γίγνεται σχῆμα κατηγορικὰς ἔχον τὰς προτάσεις· εἰ δ' οἷς ἕπεται τὸ Α καὶ ἃ μὴ ἐνδέχεται τῷ Ε, οἷον τὸ Γ καὶ τὸ Θ, τὸ πρῶτον σχῆμα στερητικὴν ἔχον τὴν πρὸς τὸ ἔλαττον ἄκρον πρότασιν. εἰ δ' ὅσα μὴ ἐνδέχεται ἑκατέρῳ, οἷον τὸ Δ καὶ τὸ Θ, στερητικαὶ ἀμφότεραι αἱ προτάσεις, ἢ ἐν τῷ πρώτῳ ἢ ἐν τῷ μέσῳ σχήματι· οὕτως δ' οὐδαμῶς ἔσται συλλογισμός.

Δῆλον δὲ καὶ ὅτι ὁποῖα ταὐτὰ ληπτέον τὰ κατὰ τὴν ἐπίσκεψιν, καὶ οὐχ ὁποῖα ἕτερα ἢ ἐναντία, πρῶτον μὲν ὅτι τοῦ μέσου χάριν ἡ ἐπίβλεψις, τὸ δὲ μέσον οὐχ ἕτερον ἀλλὰ ταὐτὸν δεῖ λαβεῖν. εἶτα ἐν ὅσοις καὶ συμβαίνει γίγνεσθαι συλλογισμὸν τῷ ληφθῆναι ἐναντία ἢ μὴ ἐνδεχόμενα τῷ αὐτῷ ὑπάρχειν, εἰς τοὺς προειρημένους ἅπαντα ἀναχθήσεται τρόπους, οἷον εἰ τὸ Β καὶ τὸ Ζ ἐναντία ἢ μὴ ἐνδέχεται τῷ αὐτῷ ὑπάρχειν· ἔσται μὲν γὰρ τούτων ληφθέντων συλλογισμὸς ὅτι οὐδενὶ τῶν Ε τὸ Α ὑπάρχει ἀλλ' οὐκ ἐξ αὐτῶν ἀλλ' ἐκ τοῦ προειρημένου τρόπου· τὸ γὰρ Β τῷ μὲν Α παντὶ τῷ δὲ Ε

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[a] 44 a 11 ff.

It is evident also that all other methods of investigation which proceed by selection are useless for producing a syllogism ; *e.g.*, (*a*) if the consequents of both terms are identical, or (*b*) if the antecedents of A and the attributes which cannot apply to E are identical ; or again (*c*) if the attributes which cannot apply to either are identical ; because no syllogism results from these conditions. For (*a*) if the consequents, viz. B and F, are identical, we get the third figure with both premisses affirmative ; (*b*) if the antecedents of A and the attributes which cannot apply to E, viz. C and H respectively, are identical, we get the first figure with a negative minor premiss ; and (*c*) if the attributes which cannot apply to either of the terms A and E, viz. D and H, are identical, both premisses are negative, either in the first or in the middle figure. In these circumstances no syllogism at all is possible.

Other methods of selection are also useless.

It is clear also that we must apprehend which of the terms that come under our survey are the same, and not which are different or contrary ; firstly, because the object of our investigation is to discover the middle term, and the middle term must be taken as the same in each premiss, and not as something different. Secondly, even those examples in which a syllogism happens to result from taking attributes which are contrary or which cannot apply to the same subject, will all be reducible to the types which we have already described ; *e.g.*, if B and F are contrary or cannot apply to the same subject. For if we take these terms, there will be a syllogism to the effect that A applies to no E, but the conclusion will be drawn not from the terms as they stand but from the type described above.[a] For B will apply to all A

It is for identity between th two groups of terms that we must look.

45 a

οὐδενὶ ὑπάρξει, ὥστ᾽ ἀνάγκη ταὐτὸ εἶναι τὸ Β τινὶ τῶν Θ. πάλιν εἰ τὸ Β καὶ Η μὴ ἐγχωρεῖ τῷ αὐτῷ παρεῖναι, ὅτι τινὶ τῶν Ε οὐχ ὑπάρξει τὸ Α· καὶ γὰρ οὕτως τὸ μέσον ἔσται σχῆμα· τὸ γὰρ Β τῷ μὲν Α παντὶ τῷ δὲ Ε[1] οὐ τινὶ[2] ὑπάρξει, ὥστ᾽ ἀνάγκη τὸ Β ταὐτόν τινι εἶναι τῶν Θ. τὸ γὰρ μὴ ἐνδέχεσθαι τὸ Β καὶ τὸ Η τῷ αὐτῷ ὑπάρχειν οὐδὲν διαφέρει ἢ τὸ Β τῶν Θ τινὶ ταὐτὸν εἶναι· πάντα γὰρ εἴληπται τὰ μὴ ἐνδεχόμενα τῷ Ε ὑπάρχειν.

Φανερὸν μὲν οὖν ὅτι ἐξ αὐτῶν μὲν τούτων τῶν ἐπιβλέψεων οὐδεὶς γίγνεται συλλογισμός, ἀνάγκη δ᾽, εἰ[3] τὸ Β καὶ τὸ Ζ ἐναντία, ταὐτόν τινι εἶναι τὸ Β τῶν Θ καὶ τὸν συλλογισμὸν γίγνεσθαι διὰ τούτων. συμβαίνει δὴ τοῖς οὕτως ἐπισκοποῦσι προσεπιβλέπειν ἄλλην ὁδὸν τῆς ἀναγκαίας διὰ τὸ λανθάνειν τὴν ταὐτότητα τῶν Β καὶ τῶν Θ.

XXIX. Τὸν αὐτὸν δὲ τρόπον ἔχουσι καὶ οἱ εἰς τὸ ἀδύνατον ἄγοντες συλλογισμοὶ τοῖς δεικτικοῖς· καὶ γὰρ οὗτοι γίγνονται διὰ τῶν ἑπομένων καὶ οἷς ἕπεται ἑκάτερον. καὶ ἡ αὐτὴ ἐπίβλεψις ἐν ἀμφοῖν· ὃ γὰρ δείκνυται δεικτικῶς καὶ διὰ τοῦ ἀδυνάτου ἔστι συλλογίσασθαι διὰ τῶν αὐτῶν ὅρων, καὶ ὃ διὰ τοῦ ἀδυνάτου καὶ δεικτικῶς· οἷον ὅτι τὸ Α οὐδενὶ τῶν Ε ὑπάρχει. κείσθω γὰρ τινὶ ὑπάρχειν· οὐκοῦν ἐπεὶ τὸ Β παντὶ τῷ Α τὸ δὲ Α τινὶ τῶν Ε, τὸ Β τινὶ τῶν Ε ὑπάρξει· ἀλλ᾽ οὐδενὶ ὑπῆρχεν. πάλιν ὅτι τινὶ ὑπάρχει· εἰ γὰρ μηδενὶ τῶν Ε τὸ Α τὸ δὲ Ε

[1] EB¹u¹: H uolgo.
[2] οὐ τινὶ Waitz: οὐδενὶ codd.
[3] ἀνάγκη δ᾽, εἰ Bnu, Waitz: ἐὰν δὲ ACdfm.

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[a] 44 a 16.

but to no E, and so B must be the same as some H. Again, if B and G cannot apply to the same subject, there will be a syllogism to the effect that A will not apply to some E. In this case too we shall have the middle figure, because B will apply to all A but not to some E, so that B must be the same as some H. For the statement ' B and G cannot apply to the same subject ' is equivalent to ' B is the same as some H ' ; since H has been assumed[a] to designate all the attributes which cannot apply to E.

Thus it is evident that no syllogism results from the foregoing methods of investigation as they stand, but that if B and F are contrary, B must be the same as some H, and in this way the syllogism is obtained. Thus it follows that those who consider the problem in the manner which has just been described are looking for a further method of proof than they need, through overlooking the identity between the Bs and Hs.

The same principles apply to syllogisms which are established *per impossibile.*

XXIX. Syllogisms which employ reduction *ad impossibile* are governed by the same conditions as those which are ostensive ; for they too are effected by means of the consequents and antecedents of the two extreme terms. The method of investigation, too, is the same in both types ; for that which is proved ostensively can be established *per impossibile* by means of the same terms, and *vice versa* : *e.g.*, that A applies to no E.[b] For let it be assumed that it applies to some. Then since B applies to all A, and A to some E, B will apply to some E. But *ex hypothesi* it applies to none. Again, it can be proved that A applies to some E ; for if it applies to none, and

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[b] The relations of these terms are still as assumed in ch. xxviii.

παντὶ τῷ Η, οὐδενὶ τῶν Η ὑπάρξει τὸ Α· ἀλλὰ παντὶ ὑπῆρχεν. ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων προβλημάτων· ἀεὶ γὰρ ἔσται καὶ ἐν ἅπασιν ἡ διὰ τοῦ ἀδυνάτου δεῖξις ἐκ τῶν ἑπομένων καὶ οἷς ἕπεται ἑκάτερον.

Καὶ καθ' ἕκαστον πρόβλημα ἡ αὐτὴ σκέψις δεικτικῶς τε βουλομένῳ συλλογίσασθαι καὶ εἰς τὸ ἀδύνατον ἀγαγεῖν· ἐκ γὰρ τῶν αὐτῶν ὅρων ἀμφότεραι αἱ ἀποδείξεις· οἷον εἰ δέδεικται μηδενὶ ὑπάρχειν τῷ Ε τὸ Α, ὅτι συμβαίνει καὶ τὸ Β τινὶ τῶν Ε ὑπάρχειν, ὅπερ ἀδύνατον· ἐὰν ληφθῇ τῷ μὲν Ε μηδενὶ τῷ δὲ Α παντὶ ὑπάρχειν τὸ Β, φανερὸν ὅτι οὐδενὶ τῷ Ε τὸ Α ὑπάρξει. πάλιν εἰ δεικτικῶς συλλελόγισται τὸ Α τῷ Ε μηδενὶ ὑπάρχειν, ὑποθεμένοις ὑπάρχειν τινὶ διὰ τοῦ ἀδυνάτου δειχθήσεται οὐδενὶ ὑπάρχον. ὁμοίως δὲ κἀπὶ τῶν ἄλλων· ἐν ἅπασι γὰρ ἀνάγκη κοινόν τινα λαβεῖν ὅρον ἄλλον τῶν ὑποκειμένων, πρὸς ὃν ἔσται τοῦ ψευδοῦς ὁ συλλογισμός, ὥστ' ἀντιστραφείσης ταύτης τῆς προτάσεως τῆς δ' ἑτέρας ὁμοίως ἐχούσης, δεικτικὸς ἔσται ὁ συλλογισμὸς διὰ τῶν αὐτῶν ὅρων. διαφέρει γὰρ ὁ δεικτικὸς τοῦ εἰς τὸ ἀδύνατον ὅτι ἐν μὲν τῷ δεικτικῷ κατ' ἀλήθειαν ἀμφότεραι τίθενται αἱ προτάσεις, ἐν δὲ τῷ εἰς τὸ ἀδύνατον ψευδῶς ἡ μία.

Ταῦτα μὲν οὖν ἔσται μᾶλλον φανερὰ διὰ τῶν ἑπομένων, ὅταν περὶ τοῦ ἀδυνάτου λέγωμεν· νῦν δὲ τοσοῦτον ἡμῖν ἔστω δῆλον, ὅτι εἰς ταὐτὰ[1] βλεπτέον δεικτικῶς τε βουλομένῳ συλλογίζεσθαι καὶ εἰς τὸ

[1] ταὐτὰ corr. C: ταῦτα codd.

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[a] *i.e.* is replaced by its contradictory.

[b] II. xiv.

E applies to all G, A will apply to no G; but *ex hypothesi* it applies to all. Similarly with all other propositions; proof *per impossibile* will always be possible in all cases by means of the consequents and antecedents of the extreme terms.

Moreover, in every problem the procedure is the same whether it is required to employ an ostensive syllogism or reduction *ad impossibile*; for both proofs are effected by means of the same terms. *E.g.*, supposing that it has been proved that A applies to no E, because ⟨if A applies to some⟩ it follows that B also applies to some E, which is impossible: if it is assumed that B applies to no E but to all A, it is evident that A will apply to no E. On the other hand if the conclusion that A applies to no E has been reached ostensively, if we assume that A applies to some E, we can prove *per impossibile* that it applies to none. Similarly too in all other examples; for in every case we must take some common term (other than those which have been laid down) to which the syllogism proving the false conclusion will refer, so that when this premiss is converted[a] (the other remaining unchanged) the syllogism will become ostensive by means of the same terms. For the difference between ostensive proof and proof *per impossibile* is that in the former both premisses are assumed as true, while in the latter one is assumed as false.

These points will become clearer in the light of subsequent remarks when we are discussing proof *per impossibile*.[b] For the present let us take it that so much is obvious: that we must have regard to the same terms whether it is required to prove a conclusion ostensively or to employ reduction *ad impossibile*. In

45 b ἀδύνατον ἀγαγεῖν. ἐν δὲ τοῖς ἄλλοις συλλογισμοῖς τοῖς ἐξ ὑποθέσεως, οἷον ὅσοι κατὰ μετάληψιν ἢ κατὰ ποιότητα, ἐν τοῖς ὑποκειμένοις οὐκ ἐν τοῖς ἐξ ἀρχῆς ἀλλ' ἐν τοῖς μεταλαμβανομένοις ἔσται ἡ σκέψις, ὁ δὲ τρόπος ὁ αὐτὸς τῆς ἐπιβλέψεως. ἐπισκέψασθαι δὲ δεῖ καὶ διελεῖν ποσαχῶς οἱ ἐξ ὑποθέσεως.

Δείκνυται μὲν οὖν ἕκαστον τῶν προβλημάτων οὕτως, ἔστι δὲ καὶ ἄλλον τρόπον ἔνια συλλογίσασθαι τούτων, οἷον τὰ καθόλου διὰ τῆς κατὰ μέρος ἐπιβλέψεως ἐξ ὑποθέσεως. εἰ γὰρ τὰ Γ καὶ τὰ Η ταὐτὰ εἴη, μόνοις δὲ ληφθείη τοῖς Η τὸ Ε ὑπάρχειν, παντὶ ἂν τῷ Ε τὸ Α ὑπάρχοι· καὶ πάλιν εἰ τὰ Δ καὶ Η ταὐτά, μόνων δὲ τῶν Η τὸ Ε κατηγοροῖτο, ὅτι οὐδενὶ τῶν Ε τὸ Α ὑπάρξει. φανερὸν οὖν ὅτι καὶ οὕτως ἐπιβλεπτέον.

Τὸν αὐτὸν δὲ τρόπον καὶ ἐπὶ τῶν ἀναγκαίων καὶ τῶν ἐνδεχομένων· ἡ γὰρ αὐτὴ σκέψις καὶ διὰ τῶν αὐτῶν ὅρων ἔσται τῇ τάξει τοῦ τ' ἐνδέχεσθαι καὶ τοῦ ὑπάρχειν ὁ συλλογισμός. ληπτέον δ' ἐπὶ τῶν ἐνδεχομένων καὶ τὰ μὴ ὑπάρχοντα δυνατὰ δ' ὑπάρχειν· δέδεικται γὰρ ὅτι καὶ διὰ τούτων γίγνεται ὁ τοῦ ἐνδέχεσθαι συλλογισμός. ὁμοίως δ' ἕξει καὶ ἐπὶ τῶν ἄλλων κατηγοριῶν.

Φανερὸν οὖν ἐκ τῶν εἰρημένων οὐ μόνον ὅτι ἐγχωρεῖ διὰ ταύτης τῆς ὁδοῦ γίγνεσθαι πάντας τοὺς συλλογισμούς, ἀλλὰ καὶ ὅτι δι' ἄλλης ἀδύνατον.

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[a] *Cf.* 41 a 39.

[b] *A fortiori* or analogical arguments (Alexander 324. 19).

[c] *e.g.*, the hypothesis in the immediately following examples, that E applies to G only.

[d] 32 b 25 ff.

[e] *i.e.* propositions expressing a modal relation other than that of necessity or possibility.

the case of other hypothetical syllogisms, however, *e.g.*, such as involve substitution[a] or a qualitative relation,[b] inquiry will be concerned not with the terms originally assumed but with those which are substituted, while the manner of investigation will be the same as before. We must, however, consider and analyse the different types of hypothetical syllogisms.

Method of proving universal from particular syllogisms with the aid of a further hypothesis.

Every kind of proposition, then, can be proved in the way described above; but some can be established syllogistically in another way also. *E.g.*, universal propositions can be proved by the method of investigation proper to the corresponding particular conclusion, with the help of a further hypothesis.[c] For assuming that C and G are identical, and E applies to G only, A will apply to all E; and again assuming that D and G are identical, and E is predicated only of G, it follows that A will apply to no E. Thus it is evident that we must consider the problem in this way also.

The method of selection is the same for all modes.

The same method applies also to apodeictic and problematic syllogisms; for the process of inquiry is the same, and the syllogisms will be effected by means of the same arrangement of terms, whether it is problematic or assertoric. In the case of problematic propositions, however, we must include those terms which, although they do not apply, might possibly do so; for it has been shown[d] that the problematic syllogism is effected by means of these also. The same principle will hold good in the other modes of predication.[e]

Thus it is evident from the foregoing analysis not only that all syllogisms can be effected by this method, but also that they cannot be effected by any

ἅπας μὲν γὰρ συλλογισμὸς δέδεικται διά τινος τῶν προειρημένων σχημάτων γιγνόμενος, ταῦτα δ' οὐκ ἐγχωρεῖ δι' ἄλλων συσταθῆναι πλὴν διὰ τῶν ἑπομένων καὶ οἷς ἕπεται ἕκαστον· ἐκ τούτων γὰρ αἱ προτάσεις καὶ ἡ τοῦ μέσου λῆψις, ὥστ' οὐδὲ συλλογισμὸν ἐγχωρεῖ γίγνεσθαι δι' ἄλλων.

XXX. Ἡ μὲν οὖν ὁδὸς κατὰ πάντων ἡ αὐτὴ καὶ περὶ φιλοσοφίαν καὶ περὶ τέχνην ὁποιανοῦν καὶ μάθημα· δεῖ γὰρ τὰ ὑπάρχοντα καὶ οἷς ὑπάρχει περὶ ἑκάτερον[1] ἀθρεῖν, καὶ τούτων ὡς πλείστων εὐπορεῖν, καὶ ταῦτα διὰ τῶν τριῶν ὅρων σκοπεῖν, ἀνασκευάζοντα μὲν ὡδί, κατασκευάζοντα δὲ ὡδί, κατὰ μὲν ἀλήθειαν ἐκ τῶν κατ' ἀλήθειαν διαγεγραμμένων ὑπάρχειν, εἰς δὲ τοὺς διαλεκτικοὺς συλλογισμοὺς ἐκ τῶν κατὰ δόξαν προτάσεων.

Αἱ δ' ἀρχαὶ τῶν συλλογισμῶν καθόλου μὲν εἴρηνται, ὃν τρόπον τ' ἔχουσι καὶ ὃν τρόπον δεῖ θηρεύειν αὐτάς, ὅπως μὴ βλέπωμεν εἰς ἅπαντα τὰ λεγόμενα, μηδ' εἰς ταὐτὰ κατασκευάζοντες καὶ ἀνασκευάζοντες, μηδὲ κατασκευάζοντές τε κατὰ παντὸς ἢ τινὸς καὶ ἀνασκευάζοντες ἀπὸ πάντων ἢ τινῶν, ἀλλ' εἰς ἐλάττω καὶ ὡρισμένα, καθ' ἕκαστον δὲ ἐκλέγειν τῶν ὄντων, οἷον περὶ ἀγαθοῦ ἢ ἐπιστήμης.

Ἴδιαι[2] δὲ καθ' ἑκάστην εἰσὶν αἱ πλεῖσται. διὸ τὰς μὲν ἀρχὰς τὰς περὶ ἕκαστον ἐμπειρίας ἐστὶ παραδοῦναι. λέγω δ' οἷον τὴν ἀστρολογικὴν μὲν

[1] ἕκαστον mu, Bekker.

[2] ἴδιαι Alexander, Waitz: ἰδίᾳ codd.

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[a] i.e. the premisses.

other. For it has been proved that every syllogism is effected by means of one of the figures already described, and these cannot be composed otherwise than by means of the consequents and antecedents of the terms in each particular case; for it is from these that the premisses are formed and the middle term discovered. Hence a syllogism cannot be effected by any other terms than these.

The same method holds for all branches of knowledge.

XXX. The method, then, is the same in all cases, not only in philosophy but in every kind of art or study. We must look for the attributes and subjects of both our terms, and supply ourselves with as many as we can; and then we must consider them by means of the three terms, refuting in this way, establishing in that; when our object is truth, working from terms which are arranged to express a true relation, and when we require dialectical syllogisms, working from plausible premisses.

The general rules have now been stated,

The principles[a] of syllogisms have now been described in general terms, both how they are constituted and how we should look for them; not by considering all that is predicated of the terms in question, nor by considering the same attributes whether we are establishing or refuting a proposition, nor whether we are establishing it of all or some or refuting it of all or some; but by considering a limited number of definite attributes. We must select with regard to each particular thing that is, *e.g.*, with regard to goodness or knowledge.

but in every science knowledge of the facts must precede demonstration.

Most of the principles, however, which are connected with a particular science are peculiar to it. Hence to convey to us the principles connected with each particular science is the task of experience. I mean, *e.g.*, that it is for astronomical experience to

46 a
20 ἐμπειρίαν τῆς ἀστρολογικῆς ἐπιστήμης· ληφθέντων
γὰρ ἱκανῶς τῶν φαινομένων οὕτως εὑρέθησαν αἱ
ἀστρολογικαὶ ἀποδείξεις. ὁμοίως δὲ καὶ περὶ
ἄλλην ὁποιανοῦν ἔχει τέχνην τε καὶ ἐπιστήμην.
ὥστ' ἐὰν ληφθῇ τὰ ὑπάρχοντα περὶ ἕκαστον,
ἡμέτερον ἤδη τὰς ἀποδείξεις ἑτοίμως ἐμφανίζειν.
25 εἰ γὰρ μηδὲν κατὰ τὴν ἱστορίαν παραλειφθείη τῶν
ἀληθῶς ὑπαρχόντων τοῖς πράγμασιν, ἕξομεν περὶ
ἅπαντος οὗ μὲν ἔστιν ἀπόδειξις, ταύτην εὑρεῖν καὶ
ἀποδεικνύναι, οὗ δὲ μὴ πέφυκεν ἀπόδειξις, τοῦτο
ποιεῖν φανερόν.

Καθόλου μὲν οὖν, ὃν δεῖ τρόπον τὰς προτάσεις
ἐκλέγειν, εἴρηται σχεδόν· δι' ἀκριβείας δὲ δι-
30 εληλύθαμεν ἐν τῇ πραγματείᾳ τῇ περὶ τὴν δια-
λεκτικήν.

XXXI. Ὅτι δὲ ἡ διὰ τῶν γενῶν διαίρεσις μικρόν
τι μόριόν ἐστι τῆς εἰρημένης μεθόδου, ῥᾴδιον ἰδεῖν·
ἔστι γὰρ ἡ διαίρεσις οἷον ἀσθενὴς συλλογισμός· ὃ
μὲν γὰρ δεῖ δεῖξαι αἰτεῖται, συλλογίζεται δὲ ἀεί τι
35 τῶν ἄνωθεν. πρῶτον δ' αὐτὸ τοῦτο ἐλελήθει τοὺς
χρωμένους αὐτῇ πάντας, καὶ πείθειν ἐπεχείρουν ὡς
ὄντος δυνατοῦ περὶ οὐσίας ἀπόδειξιν γίγνεσθαι καὶ
τοῦ τί ἐστιν· ὥστ' οὔτε ὅ τι ἐνδέχεται συλλογί-
σασθαι διαιρουμένους[1] ξυνίεσαν, οὔτε ὅτι οὕτως
ἐνεδέχετο ὥσπερ εἰρήκαμεν. ἐν μὲν οὖν ταῖς ἀπο-
40 δείξεσιν, ὅταν δέῃ τι συλλογίσασθαι ὑπάρχειν, δεῖ
46 b τὸ μέσον, δι' οὗ γίγνεται ὁ συλλογισμός, καὶ ἧττον

[1] διαιρουμένους nm, Alexander, Waitz: διαιρούμενοι.

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[a] *Topics*, I. xiv.

convey to us the principles of astronomy (for it was not until the phenomena had been thoroughly apprehended that the demonstrations of astronomy were discovered); and the same applies to any other art or science. So if we apprehend the attributes of the object in question, it will at once be in our power readily to exhibit the demonstrations; for assuming that none of the true attributes of the objects concerned has been omitted in our survey, we shall be able to discover and demonstrate the proof of everything which has a proof, and to elucidate everything whose nature does not admit of proof.

The foregoing is a rough description in general terms of the way in which the premisses should be selected. We have considered this subject with detailed accuracy in our treatise on dialectic.[a]

Criticism of the Platonic definition by dichotomy.

XXXI. It is easy to see that the process of division by genera[b] is a minor instance of the method described above; for the division is, as it were, a weak syllogism, since it begs the point which it is required to prove, and always reaches a more general conclusion than is required. In the first place this fact had escaped all the exponents of the process; and they tried to insist that it is possible to effect a demonstration of substance and essence. Hence they did not understand what syllogistic conclusion can be reached by the process of division, nor did they realize that it can be reached in the way which we have described. In demonstrations when it is required to prove syllogistically an affirmative proposition, the middle term, by means of which the syllogism is effected, must always be subordinate to

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[b] The Platonic method of dichotomy. *Cf. Sophist* 219 A ff., *Politicus* 258 B ff.

46 b ἀεὶ εἶναι καὶ μὴ καθόλου τοῦ πρώτου τῶν ἄκρων· ἡ δὲ διαίρεσις τοὐναντίον βούλεται· τὸ γὰρ καθόλου λαμβάνει μέσον.

Ἔστω γὰρ ζῷον μὲν ἐφ' οὗ Α, τὸ δὲ θνητὸν ἐφ' οὗ Β, καὶ ἀθάνατον ἐφ' οὗ Γ, ὁ δ' ἄνθρωπος, οὗ τὸν ὅρον δεῖ λαβεῖν, ἐφ' οὗ τὸ Δ. ἅπαν δὴ ζῷον λαμβάνει ἢ θνητὸν ἢ ἀθάνατον· τοῦτο δ' ἐστίν, ὃ ἂν ᾖ Α, ἅπαν εἶναι ἢ Β ἢ Γ. πάλιν τὸν ἄνθρωπον ἀεὶ διαιρούμενος τίθεται ζῷον εἶναι, ὥστε κατὰ τοῦ Δ τὸ Α λαμβάνει ὑπάρχειν. ὁ μὲν οὖν συλλογισμός ἐστιν ὅτι τὸ Δ ἢ Β ἢ Γ ἅπαν ἔσται, ὥστε τὸν ἄνθρωπον ἢ θνητὸν μὲν ἢ ἀθάνατον ἀναγκαῖον εἶναι, ζῷον θνητὸν δὲ οὐκ ἀναγκαῖον, ἀλλ' αἰτεῖται· τοῦτο δ' ἦν ὃ ἔδει συλλογίσασθαι. καὶ πάλιν θέμενος τὸ μὲν Α ζῷον θνητόν, ἐφ' οὗ δὲ τὸ Β ὑπόπουν, ἐφ' οὗ δὲ τὸ Γ ἄπουν, τὸν δ' ἄνθρωπον τὸ Δ, ὡσαύτως λαμβάνει τὸ μὲν Α ἤτοι ἐν τῷ Β ἢ ἐν τῷ Γ εἶναι (ἅπαν γὰρ ζῷον θνητὸν ἢ ὑπόπουν ἢ ἄπουν ἐστί), κατὰ δὲ τοῦ Δ τὸ Α (τὸν γὰρ ἄνθρωπον ζῷον θνητὸν εἶναι ἔλαβεν)· ὥστ' ὑπόπουν μὲν ἢ ἄπουν εἶναι ζῷον ἀνάγκη τὸν ἄνθρωπον, ὑπόπουν δ' οὐκ ἀνάγκη ἀλλὰ λαμβάνει· τοῦτο δ' ἦν ὃ ἔδει πάλιν δεῖξαι. καὶ τοῦτον δὴ τὸν τρόπον ἀεὶ διαιρουμένοις τὸ μὲν καθόλου συμβαίνει αὐτοῖς μέσον λαμβάνειν, καθ' οὗ δ' ἔδει δεῖξαι καὶ τὰς διαφορὰς ἄκρα. τέλος δὲ ὅτι τοῦτ' ἔστιν ἄνθρωπος ἢ ὅ τι ποτ' ἂν ᾖ τὸ ζητούμενον οὐδὲν λέγουσι σαφές, ὥστ' ἀναγκαῖον εἶναι· καὶ γὰρ τὴν ἄλλην ὁδὸν ποιοῦνται πᾶσαν, οὐδὲ τὰς ἐνδεχομένας εὐπορίας ὑπολαμβάνοντες ὑπάρχειν.

the major, not a universal which includes it ; but the process of division requires the contrary procedure, since it takes the universal as the middle term.

For example, let A be ' animal,' B ' mortal,' C ' immortal ' and D ' man,' whose definition it is required to find. Then the exponent of division assumes that every animal is either mortal or immortal, *i.e.*, that everything which is A is either B or C. Next, continuing his process of division, he takes ' man ' to be an animal, *i.e.* he assumes that A is predicated of D. The syllogism, then, is ' Every D will be either B or C,' so that man must necessarily be either mortal or immortal. But that he is a mortal animal is not a necessary inference, but is begged ; and this is the very point which ought to have been proved by syllogism. Again, taking A as ' mortal animal,' B as ' footed,' C as ' footless ' and D as ' man,' he assumes as before that A is included in either B or C (since every mortal animal is either footed or footless) and that A is predicated of D (for he assumed that man is a mortal animal). Hence man must be either a footed or a footless animal. That he is a footed animal, however, is not a necessary inference, but is begged ; and this again is the very point which ought to have been proved by syllogism. Since they invariably divide in this way, it follows that they take the universal term as the middle, and the subject to be defined, together with the differentiae, as the extreme terms. Finally they make no definite statement such as is necessarily valid to the effect that man, or whatever concept they are examining, is so-and-so ; for they follow the other method throughout, without even suspecting that the available facilities for demonstration exist.

Φανερὸν δ' ὅτι οὔτ' ἀνασκευάσαι ταύτῃ τῇ μεθόδῳ ἔστιν, οὔτε περὶ συμβεβηκότος ἢ ἰδίου συλλογίσασθαι, οὔτε περὶ γένους, οὔτ' ἐν οἷς ἀγνοεῖται τὸ πότερον ὧδε ἢ ὧδε ἔχει, οἷον ἆρ' ἡ διάμετρος ἀσύμμετρος. ἐὰν γὰρ λάβῃ ὅτι ἅπαν μῆκος ἢ σύμμετρον ἢ ἀσύμμετρον, ἡ δὲ διάμετρος μῆκος, συλλελόγισται ὅτι ἀσύμμετρος ἢ σύμμετρος ἡ διάμετρος. εἰ δὲ λήψεται ἀσύμμετρον, ὃ ἔδει συλλογίσασθαι λήψεται. οὐκ ἄρα ἔστι δεῖξαι· ἡ μὲν γὰρ ὁδὸς αὕτη, διὰ ταύτης δ' οὐκ ἔστιν. τὸ ἀσύμμετρον ἢ σύμμετρον ἐφ' οὗ Α, μῆκος Β, διάμετρος Γ.

Φανερὸν οὖν ὅτι οὔτε πρὸς πᾶσαν σκέψιν ἁρμόζει τῆς ζητήσεως ὁ τρόπος, οὔτ' ἐν οἷς μάλιστα δοκεῖ πρέπειν, ἐν τούτοις ἐστὶ χρήσιμος.

Ἐκ τίνων μὲν οὖν αἱ ἀποδείξεις γίγνονται καὶ πῶς, καὶ εἰς ποῖα βλεπτέον καθ' ἕκαστον πρόβλημα, φανερὸν ἐκ τῶν εἰρημένων.

XXXII. Πῶς δ' ἀνάξομεν τοὺς συλλογισμοὺς εἰς τὰ προειρημένα σχήματα, λεκτέον ἂν εἴη μετὰ ταῦτα· λοιπὸν γὰρ ἔτι τοῦτο τῆς σκέψεως. εἰ γὰρ τήν τε γένεσιν τῶν συλλογισμῶν θεωροῖμεν καὶ τοῦ εὑρίσκειν ἔχοιμεν δύναμιν, ἔτι δὲ τοὺς γεγενημένους ἀναλύοιμεν εἰς τὰ προειρημένα σχήματα, τέλος ἂν ἔχοι ἡ ἐξ ἀρχῆς πρόθεσις. συμβήσεται δ' ἅμα καὶ τὰ πρότερον εἰρημένα ἐπιβεβαιοῦσθαι καὶ φανερώτερα εἶναι ὅτι οὕτως ἔχει διὰ τῶν νῦν λεχ-

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[a] Apparently the word is here used to mean inferential processes in general.

It is evident that by this method it is impossible either (*a*) to refute a proposition, or to draw an inference (*b*) about an accident or property, or (*c*) about a genus, or (*d*) in cases where a question of fact is uncertain, *e.g.*, whether the diagonal of a square is incommensurable with the sides. For if one assumes that every linear magnitude is either commensurable or incommensurable, and the diagonal is a linear magnitude, the conclusion is that the diagonal is either commensurable or incommensurable; and if one assumes it to be incommensurable, he will be assuming what ought to have been proved by syllogism. Therefore proof is impossible; for this is the method, and by it there is no proof. A stands for 'commensurable or incommensurable,' B for 'linear magnitude,' C for 'diagonal.'

Thus it is evident (1) that this method of inquiry is not adapted for every investigation, and (2) that it is useless even in those cases for which it is supposed to be especially suitable.

Thus it is evident from the foregoing account by what means and in what way demonstrations are effected, and what kind of attributes should be taken into account in each type of problem.

Reduction of arguments to syllogistic form.

XXXII. We must next explain how to reduce syllogisms [a] to the figures previously described; this part of our inquiry still remains. For if we examine the means by which syllogisms are produced, and possess the ability to invent them, and can also reduce the syllogisms when constructed to the figures previously described, our original undertaking will be completed. Incidentally our previous statements will be further confirmed, and their accuracy will be made more evident, by what is now

47 a θησομένων· δεῖ γὰρ πᾶν τὸ ἀληθὲς αὐτὸ ἑαυτῷ ὁμολογούμενον εἶναι πάντῃ.

10 Πρῶτον μὲν οὖν δεῖ πειρᾶσθαι τὰς δύο προτάσεις ἐκλαμβάνειν τοῦ συλλογισμοῦ (ῥᾷον γὰρ εἰς τὰ μείζω διελεῖν ἢ τὰ ἐλάττω, μείζω δὲ τὰ συγκείμενα ἢ ἐξ ὧν), εἶτα σκοπεῖν ποτέρα ἐν ὅλῳ καὶ ποτέρα ἐν μέρει, καὶ εἰ μὴ ἄμφω εἰλημμέναι εἶεν, αὐτὸν 15 τιθέντα τὴν ἑτέραν. ἐνίοτε γὰρ τὴν καθόλου προτείναντες τὴν ἐν ταύτῃ οὐ λαμβάνουσιν, οὔτε γράφοντες οὔτ' ἐρωτῶντες· ἢ ταύτας μὲν προτείνουσι, δι' ὧν δ' αὗται περαίνονται παραλείπουσιν, ἄλλα δὲ μάτην ἐρωτῶσι. σκεπτέον οὖν εἴ τι περίεργον εἴληπται καί τι τῶν ἀναγκαίων παρα- 20 λέλειπται, καὶ τὸ μὲν θετέον τὸ δ' ἀφαιρετέον ἕως ἂν ἔλθῃ τις εἰς τὰς δύο προτάσεις· ἄνευ γὰρ τούτων οὐκ ἔστιν ἀναγαγεῖν[1] τοὺς οὕτως ἠρωτημένους λόγους. ἐνίων μὲν οὖν ῥᾴδιον ἰδεῖν τὸ ἐνδεές, ἔνιοι δὲ λανθάνουσι καὶ δοκοῦσι συλλογίζεσθαι διὰ τὸ ἀναγκαῖόν τι συμβαίνειν ἐκ τῶν κειμένων, οἷον εἰ 25 ληφθείη μὴ οὐσίας ἀναιρουμένης μὴ ἀναιρεῖσθαι οὐσίαν, ἐξ ὧν δ' ἐστὶν ἀναιρουμένων καὶ τὸ ἐκ τούτων φθείρεσθαι· τούτων γὰρ τεθέντων ἀναγκαῖον μὲν τὸ οὐσίας μέρος εἶναι οὐσίαν· οὐ μὴν συλλελόγισται διὰ τῶν εἰλημμένων, ἀλλ' ἐλλείπουσι προτάσεις. πάλιν εἰ ἀνθρώπου ὄντος ἀνάγκη ζῷον εἶναι

[1] ἀγαγεῖν Adnu.

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[a] In this case the terms.

[b] *Cf. Topics*, VIII. i.

to follow; for every truth must be in all respects self-consistent.

The premisses must be rightly chosen, fully stated and properly conditioned.

First, then, we must try to select the two premisses of the syllogism (since it is easier to analyse into the greater than into the smaller parts,[a] and the composite is greater than its constituents), and then consider which is universal and which particular, supplying the missing premiss ourselves if only one has been assumed; for both in writing and in argument people sometimes, while stating the universal premiss, fail to mention the premiss contained in it, or they state the immediate premisses, but omit to mention the premisses from which they are inferred, and unnecessarily ask for the concession of others. We must consider, then, whether anything superfluous has been assumed, and whether anything necessary has been left out, and we must posit the latter and reject the former until we arrive at the two premisses; for without these we cannot reduce arguments which have been suggested in the way described above.[b] The inadequacy of some arguments is easily seen, but others escape detection and appear to have a syllogistic force because some necessary conclusion follows from what is laid down: *e.g.*, if it were assumed (*a*) that substance is not destroyed by the destruction of non-substance, and (*b*) that if the constituents of anything are destroyed, that which is composed of them also perishes; for if we posit these assumptions it necessarily follows that any part of substance is substance, yet it has not been proved syllogistically by means of the assumptions; the premisses are deficient. Again, if something animate must exist if man exists, and substance must exist if something animate exists,

47 a 30 καὶ ζῴου οὐσίαν, ἀνθρώπου ὄντος ἀνάγκη οὐσίαν
εἶναι· ἀλλ' οὔπω συλλελόγισται· οὐ γὰρ ἔχουσιν αἱ
προτάσεις ὡς εἴπομεν.[a]

Ἀπατώμεθα δ' ἐν τοῖς τοιούτοις διὰ τὸ ἀναγκαῖόν
τι συμβαίνειν ἐκ τῶν κειμένων, ὅτι καὶ ὁ
συλλογισμὸς ἀναγκαῖόν ἐστιν. ἐπὶ πλέον δὲ τὸ
ἀναγκαῖον ἢ ὁ συλλογισμός· ὁ μὲν γὰρ συλλογισμὸς
35 πᾶς ἀναγκαῖον, τὸ δ' ἀναγκαῖον οὐ πᾶν συλλογισμός.
ὥστ' οὐκ εἴ τι συμβαίνει τεθέντων τινῶν
πειρατέον ἀνάγειν εὐθύς, ἀλλὰ πρῶτον ληπτέον τὰς
δύο προτάσεις, εἶθ' οὕτω διαιρετέον εἰς τοὺς ὅρους,
μέσον δὲ θετέον τῶν ὅρων τὸν ἐν ἀμφοτέραις ταῖς
προτάσεσι λεγόμενον· ἀνάγκη γὰρ τὸ μέσον ἐν
40 ἀμφοτέραις ὑπάρχειν ἐν ἅπασι τοῖς σχήμασιν. ἐὰν
47 b μὲν οὖν κατηγορῇ καὶ κατηγορῆται τὸ μέσον, ἢ
αὐτὸ μὲν κατηγορῇ ἄλλο δ' ἐκείνου ἀπαρνῆται, τὸ
πρῶτον ἔσται σχῆμα· ἐὰν δὲ καὶ κατηγορῇ καὶ
ἀπαρνῆται ἀπό τινος, τὸ μέσον· ἐὰν δ' ἄλλα ἐκείνου
5 κατηγορῆται, ἢ τὸ μὲν ἀπαρνῆται τὸ δὲ κατηγορῆται,
τὸ ἔσχατον· οὕτω γὰρ εἶχεν ἐν ἑκάστῳ
σχήματι τὸ μέσον. ὁμοίως δὲ καὶ ἐὰν μὴ καθόλου
ὦσιν αἱ προτάσεις· ὁ γὰρ αὐτὸς διορισμὸς τοῦ
μέσου. φανερὸν οὖν ὡς ἐν ᾧ λόγῳ μὴ λέγεται
ταὐτὸ πλεονάκις, ὅτι οὐ γίγνεται συλλογισμός· οὐ
10 γὰρ εἴληπται μέσον. ἐπεὶ δ' ἔχομεν ποῖον ἐν ἑκάστῳ
σχήματι περαίνεται τῶν προβλημάτων, καὶ
ἐν τίνι τὸ καθόλου καὶ ἐν ποίῳ τὸ ἐν μέρει, φανερὸν

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[a] 25 b 35, 26 b 36, 28 a 12.

substance must exist if man exists; but the argument is not yet a syllogism, because the premisses are not conditioned in the way which we have described.

Not every argument which gives a necessary conclusion is a syllogism.

We are misled in these examples by the fact that something necessarily follows from what has been laid down, because the syllogism is also necessary. But 'necessary' has a wider extension of meaning than 'syllogism,' for every syllogism is necessary, but not everything necessary is a syllogism. Hence if something follows from certain assumptions we must not immediately try to reduce the argument to a syllogism; we must first grasp the two premisses, and so proceed to analyse them into their terms, and posit as the middle term that which is stated in both premisses; for in all the figures the middle term must be present in both premisses. Thus if the middle term both is and has a predicate, or is itself a predicate and has something else denied of it, we shall have the first figure; if it is a predicate and has something else denied of it, we shall have the middle figure; and if other terms are asserted of it, or if one term is denied and the other asserted of it, we shall have the last figure; for we have seen[a] that the middle term stands in these relations in the several figures. Similarly too if the premisses are not universal; for the definition of the middle term is the same as before. Thus it is evident that if in any argument the same term is not stated more than once, there is no syllogism, because no middle term has been taken. And since we now comprehend what type of proposition is proved in each figure, *i.e.* in which figure the universal proposition is proved and in which the particular, it is evident that

47 b

ὡς οὐκ εἰς ἅπαντα τὰ σχήματα βλεπτέον, ἀλλ' ἑκάστου προβλήματος εἰς τὸ οἰκεῖον. ὅσα δ' ἐν πλείοσι περαίνεται, τῇ τοῦ μέσου θέσει γνωριοῦμεν τὸ σχῆμα.

XXXIII. Πολλάκις μὲν οὖν ἀπατᾶσθαι συμβαίνει περὶ τοὺς συλλογισμοὺς διὰ τὸ ἀναγκαῖον, ὥσπερ εἴρηται πρότερον, ἐνίοτε δὲ παρὰ τὴν ὁμοιότητα τῆς τῶν ὅρων θέσεως· ὅπερ οὐ χρὴ λανθάνειν ἡμᾶς. οἷον εἰ τὸ Α κατὰ τοῦ Β λέγεται καὶ τὸ Β κατὰ τοῦ Γ· δόξειε γὰρ ἂν οὕτως ἐχόντων τῶν ὅρων εἶναι συλλογισμός, οὐ γίγνεται δ' οὔτ' ἀναγκαῖον οὐδὲν οὔτε συλλογισμός. ἔστω γὰρ ἐφ' ᾧ Α τὸ ἀεὶ εἶναι, ἐφ' ᾧ δὲ Β διανοητὸς Ἀριστομένης, τὸ δ' ἐφ' ᾧ Γ Ἀριστομένης. ἀληθὲς δὴ τὸ Α τῷ Β ὑπάρχειν· ἀεὶ γάρ ἐστι διανοητὸς Ἀριστομένης. ἀλλὰ καὶ τὸ Β τῷ Γ· ὁ γὰρ Ἀριστομένης ἐστὶ διανοητὸς Ἀριστομένης. τὸ δ' Α τῷ Γ οὐχ ὑπάρχει· φθαρτὸς γάρ ἐστιν ὁ Ἀριστομένης. οὐ γὰρ[1] ἐγίγνετο συλλογισμὸς οὕτως ἐχόντων τῶν ὅρων, ἀλλ' ἔδει καθόλου τὴν ΑΒ ληφθῆναι πρότασιν. τοῦτο δὲ ψεῦδος, τὸ ἀξιοῦν πάντα τὸν διανοητὸν Ἀριστομένην ἀεὶ εἶναι, φθαρτοῦ ὄντος Ἀριστομένους.

Πάλιν ἔστω τὸ μὲν ἐφ' ᾧ Γ Μίκκαλος, τὸ δ' ἐφ' ᾧ Β μουσικὸς Μίκκαλος, ἐφ' ᾧ δὲ τὸ Α τὸ φθείρεσθαι αὔριον. ἀληθὲς δὴ τὸ Β τοῦ Γ κατηγορεῖν· ὁ γὰρ Μίκκαλός ἐστι μουσικὸς Μίκκαλος· ἀλλὰ καὶ τὸ Α τοῦ Β· φθείροιτο γὰρ ἂν αὔριον μουσικὸς Μίκ-

[1] οὐ γὰρ] οὐκ ἄρα n, Bekker.

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[a] 47 a 31. [b] 26 a 30.

[c] *i.e.* cease to be cultured. The example is unhappily chosen, since 'cultured Miccalus' is a narrower term than 'Miccalus' unqualified, and therefore cannot properly stand

we should not take all the figures into account at any given time, but only the figure proper to the proposition in question. Where the proposition can be proved in more than one figure, we shall identify the figure by the position of the middle term.

Some arguments, though not syllogisms, appear at first sight to be so.

XXXIII. It often happens, then, as we have already said,[a] that we are misled in our consideration of syllogisms by the sequence of a necessary conclusion; but we are also sometimes misled—a fact which must not be overlooked—as the result of a similar arrangement of terms, *e.g.*, if A is predicated of B and B of C. For it would seem that with this relation of terms there is a syllogism, although no necessary consequence or syllogism results. Let A stand for 'always existing,' B for 'Aristomenes as an object of thought' and C for Aristomenes. Then it is true that A applies to B, because Aristomenes as an object of thought always exists. But B also applies to C; because Aristomenes is Aristomenes as an object of thought. Yet A does not apply to C; because Aristomenes is perishable. For no syllogism is produced, as we saw,[b] by the above combination of terms; to produce a syllogism the premiss AB ought to have been taken universally. But it is false to postulate that all Aristomenes as an object of thought always exists, since Aristomenes is perishable.

Again, let C stand for Miccalus, B for 'cultured Miccalus' and A for 'perishing to-morrow.' Then it is true to predicate B of C, because Miccalus is cultured Miccalus. But it is also true to predicate A of B, for cultured Miccalus may perish to-morrow.[c]

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as a middle. In the previous example 'Aristomenes as an object of thought,' being a kind of universal, is a legitimate middle.

καλος· τὸ δέ γε Α τοῦ Γ ψεῦδος. τοῦτο δὴ ταὐτόν ἐστι τῷ πρότερον· οὐ γὰρ ἀληθὲς καθόλου Μίκκαλος μουσικὸς ὅτι φθείρεται αὔριον· τούτου δὲ μὴ ληφθέντος οὐκ ἦν συλλογισμός.

Αὕτη μὲν οὖν ἡ ἀπάτη γίγνεται ἐν τῷ παρὰ μικρόν· ὡς γὰρ οὐδὲν διαφέρον εἰπεῖν τόδε τῷδε ὑπάρχειν ἢ τόδε τῷδε παντὶ ὑπάρχειν συγχωροῦμεν.

XXXIV. Πολλάκις δὲ διαψεύδεσθαι συμπεσεῖται παρὰ τὸ μὴ καλῶς ἐκτίθεσθαι τοὺς κατὰ τὴν πρότασιν ὅρους, οἷον εἰ τὸ μὲν Α εἴη ὑγίεια, τὸ δ' ἐφ' ᾧ Β νόσος, ἐφ' ᾧ δὲ Γ ἄνθρωπος. ἀληθὲς γὰρ εἰπεῖν ὅτι τὸ Α οὐδενὶ τῷ Β ἐνδέχεται ὑπάρχειν (οὐδεμιᾷ γὰρ νόσῳ ὑγίεια ὑπάρχει), καὶ πάλιν ὅτι τὸ Β παντὶ τῷ Γ ὑπάρχει (πᾶς γὰρ ἄνθρωπος δεκτικὸς νόσου). δόξειεν ἂν οὖν συμβαίνειν μηδενὶ ἀνθρώπῳ ἐνδέχεσθαι ὑγίειαν ὑπάρχειν. τούτου δ' αἴτιον τὸ μὴ καλῶς ἐκκεῖσθαι τοὺς ὅρους κατὰ τὴν λέξιν, ἐπεὶ μεταληφθέντων τῶν κατὰ τὰς ἕξεις οὐκ ἔσται συλλογισμός, οἷον ἀντὶ μὲν τῆς ὑγιείας εἰ τεθείη τὸ ὑγιαῖνον, ἀντὶ δὲ τῆς νόσου τὸ νοσοῦν. οὐ γὰρ ἀληθὲς εἰπεῖν ὡς οὐκ ἐνδέχεται τῷ νοσοῦντι τὸ ὑγιαίνειν ὑπάρξαι. τούτου δὲ μὴ ληφθέντος οὐ γίγνεται συλλογισμός, εἰ μὴ τοῦ ἐνδέχεσθαι· τοῦτο δ' οὐκ ἀδύνατον· ἐνδέχεται γὰρ μηδενὶ ἀνθρώπῳ ὑπάρχειν ὑγίειαν.

Πάλιν ἐπὶ τοῦ μέσου σχήματος ὁμοίως ἔσται τὸ ψεῦδος· τὴν γὰρ ὑγίειαν νόσῳ μὲν οὐδεμιᾷ ἀνθρώπῳ δὲ παντὶ ἐνδέχεται ὑπάρχειν, ὥστ' οὐδενὶ ἀνθρώπῳ

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[a] 26 a 30.

[b] This should strictly be a problematic premiss.

[c] The reading νόσον implies an apodeictic conclusion:

But it is false to predicate A of C. Thus the case is the same as before, because it is not universally true of cultured Miccalus that he perishes to-morrow; and unless this is assumed there is, as we saw,[a] no syllogism.

This mistake, then, has its origin in a slight distinction; for we assent to the argument as though there were no difference between the statements 'this applies to that' and 'this applies to all of that.'

Fallacies arise from faulty setting out of terms.

XXXIV. It will often happen, however, that we are entirely misled through failure to set out the terms properly in the premiss: *e.g.*, supposing that A is 'health,' B 'disease' and C 'man.' For it is true to say that A cannot apply to any B (since health applies to no disease) and again that B applies to all C (since every man is liable to disease).[b] Thus it would seem to follow that health cannot apply to any man. The reason of this is that the terms are not properly expressed in the proposition, since if we substitute for the respective states the objects corresponding to them, there will be no syllogism; I mean supposing that 'the healthy' is posited instead of 'health,' and 'the diseased' instead of 'disease.' For it is not true to say that being healthy cannot apply at any time to the diseased; but if this is not assumed, no syllogism results, except of the problematic type. This is not impossible, since health may apply to no man.

Again, in the middle figure the fallacy will occur in a similar form: health cannot apply to any disease, but may apply to every man; hence disease does not[c]

'cannot apply.' This is inconsistent with Aristotle's doctrine in 38 a 13 ff. Either it is a careless mistake, or we should read *νόσος*.

νόσον.[1] ἐν δὲ τῷ τρίτῳ σχήματι κατὰ τὸ ἐνδέχεσθαι συμβαίνει τὸ ψεῦδος. καὶ γὰρ ὑγίειαν καὶ νόσον, καὶ ἐπιστήμην καὶ ἄγνοιαν, καὶ ὅλως τὰ ἐναντία τῷ αὐτῷ ἐνδέχεται ὑπάρχειν, ἀλλήλοις δ' ἀδύνατον. τοῦτο δ' ἀνομολογούμενον τοῖς προειρημένοις· ὅτε γὰρ τῷ αὐτῷ πλείω ἐνεδέχετο ὑπάρχειν, ἐνεδέχετο καὶ ἀλλήλοις.

Φανερὸν οὖν ὅτι ἐν ἅπασι τούτοις ἡ ἀπάτη γίγνεται παρὰ τὴν τῶν ὅρων ἔκθεσιν· μεταληφθέντων γὰρ τῶν κατὰ τὰς ἕξεις οὐδὲν γίγνεται ψεῦδος. δῆλον οὖν ὅτι κατὰ τὰς τοιαύτας προτάσεις ἀεὶ τὸ κατὰ τὴν ἕξιν ἀντὶ τῆς ἕξεως μεταληπτέον καὶ θετέον ὅρον.

XXXV. Οὐ δεῖ δὲ τοὺς ὅρους ἀεὶ ζητεῖν ὀνόματι ἐκτίθεσθαι· πολλάκις γὰρ ἔσονται λόγοι οἷς οὐ κεῖται ὄνομα. διὸ χαλεπὸν ἀνάγειν τοὺς τοιούτους συλλογισμούς. ἐνίοτε δὲ καὶ ἀπατᾶσθαι συμβήσεται διὰ τὴν τοιαύτην ζήτησιν, οἷον ὅτι τῶν ἀμέσων ἐστὶ συλλογισμός. ἔστω τὸ Α δύο ὀρθαί, τὸ ἐφ' ᾧ Β τρίγωνον, ἐφ' ᾧ δὲ Γ ἰσοσκελές. τῷ μὲν οὖν Γ ὑπάρχει τὸ Α διὰ τὸ Β, τῷ δὲ Β οὐκέτι δι' ἄλλο· καθ' αὐτὸ γὰρ τὸ τρίγωνον ἔχει δύο ὀρθάς, ὥστ' οὐκ ἔσται μέσον τοῦ ΑΒ ἀποδεικτοῦ ὄντος. φανερὸν γὰρ ὅτι τὸ μέσον οὐχ οὕτως ἀεὶ ληπτέον ὡς τόδε τι, ἀλλ' ἐνίοτε λόγον, ὅπερ συμβαίνει κἀπὶ τοῦ λεχθέντος.

XXXVI. Τὸ δὲ ὑπάρχειν τὸ πρῶτον τῷ μέσῳ

[1] an νόσος?

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[a] *Cf.* 39 a 14-19.

[b] *i.e.* represent them by single words.

apply to any man. In the third figure, however, the fallacy results in respect of possibility; for health and disease, knowledge and ignorance, and in general any pair of contraries may apply to the same object, but it is impossible that they should apply to one another. But this is inconsistent with what we said above,[a] for it was laid down that when several things may apply to the same thing they may apply also to one another.

Thus it is evident that in all these cases the error arises from the setting out of the terms; for when we substitute for the states the objects corresponding to them, no fallacy results. Thus it is clear that in such premisses as these we must always substitute for a given state the object which is in that state, and posit this as our term.

Terms cannot always be expressed in a single word.

XXXV. We should not always attempt to set out the terms by name,[b] because we shall often have expressions for which there is no accepted name. (Hence it is difficult to reduce syllogisms of this kind.) Sometimes it will happen that we are actually misled as the result of such an attempt; *e.g.*, so as to suppose that there can be a syllogism of propositions which have no middle term. Let A stand for 'two right angles,' B for 'triangle' and C for 'isosceles.' Then A applies to C because of B, but it is not because of any other term that A applies to B, for the triangle of itself contains two right angles, so that there will be no middle term of the proposition AB although it is demonstrable. For it is evident that the middle term is not always to be taken as an individual thing, but sometimes as a formula; as happens in the example just quoted.

XXXVI. We must not assume that the first term

48 a
καὶ τοῦτο τῷ ἄκρῳ οὐ δεῖ λαμβάνειν ὡς ἀεὶ κατηγορηθησομένων
48 b ἀλλήλων ἢ ὁμοίως τό τε πρῶτον
τοῦ μέσου καὶ τοῦτο τοῦ ἐσχάτου (καὶ ἐπὶ τοῦ
μὴ ὑπάρχειν δ' ὡσαύτως)· ἀλλ' ὁσαχῶς τὸ εἶναι
λέγεται καὶ τὸ ἀληθὲς εἰπεῖν αὐτὸ τοῦτο, τοσαυταχῶς
οἴεσθαι χρὴ σημαίνειν καὶ τὸ ὑπάρχειν. οἷον
5 ὅτι τῶν ἐναντίων ἐστὶ μία ἐπιστήμη· ἔστω γὰρ τὸ
Α τὸ μίαν εἶναι ἐπιστήμην, τὰ ἐναντία ἀλλήλοις
ἐφ' οὗ Β· τὸ δὴ Α τῷ Β ὑπάρχει οὐχ ὡς τὰ ἐναντία
τὸ μίαν εἶναι αὐτῶν ἐπιστήμην, ἀλλ' ὅτι ἀληθὲς
εἰπεῖν κατ' αὐτῶν μίαν εἶναι αὐτῶν ἐπιστήμην.

10 Συμβαίνει δ' ὁτὲ μὲν ἐπὶ τοῦ μέσου τὸ πρῶτον
λέγεσθαι τὸ δὲ μέσον ἐπὶ τοῦ τρίτου μὴ λέγεσθαι,
οἷον εἰ ἡ σοφία ἐστὶν ἐπιστήμη, τοῦ δ' ἀγαθοῦ ἐστὶν
ἡ σοφία [ἐπιστήμη],[1] συμπέρασμα ὅτι τοῦ ἀγαθοῦ
ἐστιν ἐπιστήμη· τὸ μὲν δὴ ἀγαθὸν οὐκ ἔστιν ἐπιστήμη,
15 ἡ δὲ σοφία ἐστὶν ἐπιστήμη. ὁτὲ δὲ τὸ μὲν
μέσον ἐπὶ τοῦ τρίτου λέγεται, τὸ δὲ πρῶτον ἐπὶ
τοῦ μέσου οὐ λέγεται· οἷον εἰ τοῦ ποιοῦ παντὸς
ἔστιν ἐπιστήμη ἢ ἐναντίου, τὸ δ' ἀγαθὸν καὶ ἐναντίον
καὶ ποιόν, συμπέρασμα μὲν ὅτι τοῦ ἀγαθοῦ
ἔστιν ἐπιστήμη, οὐκ ἔστι δὲ τὸ ἀγαθὸν ἐπιστήμη
οὐδὲ τὸ ποιὸν οὐδὲ τὸ ἐναντίον, ἀλλὰ τὸ ἀγαθὸν
20 ταῦτα. ἔστι δὲ ὅτε μήτε τὸ πρῶτον κατὰ τοῦ
μέσου μήτε τοῦτο κατὰ τοῦ τρίτου, τοῦ πρώτου
κατὰ τοῦ τρίτου ὁτὲ μὲν λεγομένου ὁτὲ δὲ μὴ
λεγομένου· οἷον εἰ οὗ ἐπιστήμη ἔστιν, ἔστι τούτου

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[1] om. Bekker.

applies to the middle and the middle to the extreme[a] in the sense that they will always be predicated of one another or that the first term will be predicated of the middle in the same way as the middle is predicated of the last (the same caution applies also to negative predication). We must suppose that the expression ' to apply ' has as many different senses as there are senses in which we say that a thing *is*, or that it is true to say that it is. Take, *e.g.*, the statement that there is one science of contraries.[b] Let A stand for ' there being one science,' and B for ' things contrary to one another.' Then A applies to B, not in the sense that the contraries *are* ' there being one science ' of them, but in the sense that it is true to state of them that there is one science of them.

The terms in the premisses may stand in other cases than the nominative.

It happens sometimes that the first term is stated of the middle, but the middle is not stated of the third term ; *e.g.*, if wisdom is knowledge, and wisdom is concerned with the good, the conclusion is that knowledge is concerned with the good. Then the good is not knowledge, although wisdom is knowledge. Sometimes the middle term is stated of the third, but the first is not stated of the middle ; *e.g.*, if there is a science of every quality or contrary, and good is both a contrary and a quality, the conclusion is that there is a science of the good ; but the good is not science, nor is the quality or the contrary, although the good is a quality and a contrary. Sometimes neither the first term is stated of the middle nor the middle of the third, while the first is sometimes stated of the third and sometimes not. *E.g.*, if there is a genus of

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[a] *i.e.* minor term.

[b] *i.e.* that both members of any given pair of contraries (*e.g.* health and disease) are studied by the same science.

48 b γένος, τοῦ δ' ἀγαθοῦ ἔστιν ἐπιστήμη, συμπέρασμα ὅτι τοῦ ἀγαθοῦ ἔστι γένος· κατηγορεῖται δ' οὐδὲν κατ' οὐδενός. εἰ δ' οὗ ἔστιν ἐπιστήμη, γένος ἐστὶ τοῦτο, τοῦ δ' ἀγαθοῦ ἔστιν ἐπιστήμη, συμπέρασμα ὅτι τἀγαθόν ἐστι γένος· κατὰ μὲν δὴ τοῦ ἄκρου κατηγορεῖται τὸ πρῶτον, κατ' ἀλλήλων δ' οὐ λέγεται.

Τὸν αὐτὸν δὴ τρόπον καὶ ἐπὶ τοῦ μὴ ὑπάρχειν ληπτέον. οὐ γὰρ ἀεὶ σημαίνει τὸ μὴ ὑπάρχειν τόδε τῷδε μὴ εἶναι τόδε τόδε, ἀλλ' ἐνίοτε τὸ μὴ εἶναι τόδε τοῦδε ἢ τόδε τῷδε, οἷον ὅτι οὐκ ἔστι κινήσεως κίνησις ἢ γενέσεως γένεσις, ἡδονῆς δ' ἔστιν· οὐκ ἄρα ἡ ἡδονὴ γένεσις· ἢ πάλιν ὅτι γέλωτος μὲν ἔστι σημεῖον, σημείου δὲ οὐκ ἔστι σημεῖον, ὥστ' οὐ σημεῖον ὁ γέλως. ὁμοίως δὲ κἂν τοῖς ἄλλοις ἐν ὅσοις ἀναιρεῖται τὸ πρόβλημα τῷ λέγεσθαί πως πρὸς αὐτὸ τὸ γένος. πάλιν ὅτι ὁ καιρὸς οὐκ ἔστι χρόνος δέων· θεῷ γὰρ καιρὸς μὲν ἔστι, χρόνος δ' οὐκ ἔστι δέων διὰ τὸ μηδὲν εἶναι θεῷ ὠφέλιμον. ὅρους μὲν γὰρ θετέον καιρὸν καὶ χρόνον δέοντα καὶ θεόν, τὴν δὲ πρότασιν ληπτέον κατὰ τὴν τοῦ ὀνόματος πτῶσιν. ἁπλῶς γὰρ τοῦτο λέγομεν κατὰ πάντων, ὅτι τοὺς μὲν ὅρους ἀεὶ θετέον κατὰ τὰς κλήσεις τῶν ὀνομάτων, οἷον ἄνθρωπος ἢ ἀγαθὸν ἢ 49 a ἐναντία, οὐκ ἀνθρώπου ἢ ἀγαθοῦ ἢ ἐναντίων, τὰς δὲ προτάσεις ληπτέον κατὰ τὰς ἑκάστου πτώσεις· ἢ γὰρ ὅτι τούτῳ, οἷον τὸ ἴσον, ἢ ὅτι τούτου, οἷον τὸ διπλάσιον, ἢ ὅτι τοῦτο, οἷον τὸ τύπτον ἢ ὁρῶν,

that of which there is a science, and there is a science of the good, the conclusion is that there is a genus of the good; yet nothing is predicated of anything. But if that of which there is a science is a genus, and if there is a science of the good, the conclusion is that the good is a genus. Thus the first is predicated of the extreme term, but the terms are not predicated of one another in the premisses.

The same must be understood to apply to negative predication; for 'X does not apply to Y' does not always mean 'X is not Y' but sometimes 'there is no X of Y' or 'for Y.' Take, for instance, the statement 'there is no motion of motion or generation of generation, but there is generation of pleasure; therefore pleasure is not generation.' Or again 'there is a sign of laughter, but there is no sign of a sign; hence laughter is not a sign.' Similarly too in all other cases in which the proposition is refuted by stating the genus in a certain relation to the terms of the proposition. Again, there is the argument that opportunity is not the right time; for opportunity belongs to God, but the right time does not, because nothing is convenient to God. We must posit as terms 'opportunity' and 'right time' and 'God,' but the premiss must be understood according to the case of the noun. For we maintain as a general rule which applies without exception to all examples that whereas the terms must always be posited in the nominative case (*e.g.*, 'man' or 'good' or 'contraries,' not 'of man' or 'of good' or 'of contraries'), the premisses must be understood in accordance with the case of each term: either in the dative, *e.g.*, 'equal to this,' or in the genitive, *e.g.*, 'double of this,' or in the accusative, *e.g.*, 'that which strikes or sees this,' or in the

ἢ ὅτι οὗτος, οἷον ὁ ἄνθρωπος ζῷον, ἢ εἴ πως ἄλλως πίπτει τοὔνομα κατὰ τὴν πρότασιν.

XXXVII. Τὸ δ' ὑπάρχειν τόδε τῷδε καὶ τὸ ἀληθεύεσθαι τόδε κατὰ τοῦδε τοσαυταχῶς ληπτέον ὁσαχῶς αἱ κατηγορίαι διῄρηνται, καὶ ταύτας ἢ πῇ ἢ ἁπλῶς, ἔτι ἁπλᾶς ἢ συμπεπλεγμένας· ὁμοίως δὲ καὶ τὸ μὴ ὑπάρχειν. ἐπισκεπτέον δὲ ταῦτα καὶ διοριστέον βέλτιον.

XXXVIII. Τὸ δ' ἐπαναδιπλούμενον ἐν ταῖς προτάσεσι πρὸς τῷ πρώτῳ ἄκρῳ θετέον, οὐ πρὸς τῷ μέσῳ. λέγω δ' οἷον εἰ γένοιτο συλλογισμὸς ὅτι τῆς δικαιοσύνης ἔστιν ἐπιστήμη ὅτι ἀγαθόν, τὸ ὅτι ἀγαθὸν ἢ ᾗ ἀγαθὸν πρὸς τῷ πρώτῳ θετέον. ἔστω γὰρ τὸ Α ἐπιστήμη ὅτι ἀγαθόν, ἐφ' ᾧ δὲ Β ἀγαθόν, ἐφ' ᾧ δὲ Γ δικαιοσύνη. τὸ δὴ Α ἀληθὲς τοῦ Β κατηγορῆσαι, τοῦ γὰρ ἀγαθοῦ ἔστιν ἐπιστήμη ὅτι ἀγαθόν· ἀλλὰ καὶ τὸ Β τοῦ Γ, ἡ γὰρ δικαιοσύνη ὅπερ ἀγαθόν. οὕτω μὲν οὖν γίγνεται ἀνάλυσις. εἰ δὲ πρὸς τῷ Β τεθείη τὸ ὅτι ἀγαθόν, οὐκ ἔσται· τὸ μὲν γὰρ Α κατὰ τοῦ Β ἀληθὲς ἔσται, τὸ δὲ Β κατὰ τοῦ Γ οὐκ ἀληθὲς ἔσται· τὸ γὰρ ἀγαθὸν ὅτι ἀγαθὸν κατηγορεῖν τῆς δικαιοσύνης ψεῦδος καὶ οὐ συνετόν. ὁμοίως δὲ καὶ εἰ τὸ ὑγιεινὸν δειχθείη ὅτι ἔστιν ἐπιστητὸν ᾗ ἀγαθόν, ἢ τραγέλαφος[1] ᾗ μὴ ὄν, ἢ ἄνθρωπος φθαρτὸν ᾗ αἰσθητόν· ἐν ἅπασι γὰρ

[1] τραγέλαφος δοξαστὸν B²d².

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[a] Literally 'goat-deer': a conventional example of fabulous animal. *Cf.* Plato, *Republic* 488 A, Aristophanes, *Frogs* 937.

[b] *i.e.* it is known not to exist. This seems to be the true

nominative, *e.g.*, ' man is an animal ' ; or in any other way in which the noun occurs in the premiss.

Various senses of the categories in predication.

XXXVII. The statements that X applies to Y and that X is true of Y must be understood in as many different senses as there are distinct categories ; and the categories must be taken either in a particular or in an unqualified sense, and further as either simple or compound. Similarly too with negative attribution. These points, however, call for further consideration and more adequate analysis.

Syllogisms with qualified premisses.

XXXVIII. Any term which is duplicated in the premisses should be attached to the first extreme and not to the middle. I mean, *e.g.*, that supposing we should have a syllogism to the effect that ' there is knowledge of probity that it is good,' the expression ' that it is good ' or ' *qua* good ' should be attached to the first term. Let A stand for ' knowledge that it is good,' B for ' good ' and C for ' probity.' Then it is true to predicate A of B, for there is knowledge of good that it is good. But it is also true to predicate B of C ; for probity is identical with one form of good. Thus in this way an analysis can be effected. Supposing, however, that the expression ' that it is good ' be attached to B, there will be no analysis ; for A will be true of B, but B will not be true of C, since to predicate of probity that it is good that it is good is false and unintelligible. Similarly too supposing that it be proved that the healthy is *qua* good an object of knowledge, or that a unicorn[a] is *qua* non-existent an object of knowledge,[b] or that a man is *qua* perceptible perishable ; for in all

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meaning. δοξαστόν, ' as imaginary,' makes good sense, but it has very little authority, and I have followed Waitz and Jenkinson in rejecting it.

49 a
τοῖς ἐπικατηγορουμένοις πρὸς τῷ ἄκρῳ τὴν ἐπαναδίπλωσιν θετέον.

Οὐχ ἡ αὐτὴ δὲ θέσις τῶν ὅρων ὅταν ἁπλῶς τι
συλλογισθῇ καὶ ὅταν τόδε τι ἢ πῇ ἢ πώς, λέγω δ'
οἷον ὅταν τἀγαθὸν ἐπιστητὸν δειχθῇ καὶ ὅταν
30 ἐπιστητὸν[1] ὅτι ἀγαθόν· ἀλλ' εἰ μὲν ἁπλῶς ἐπιστητὸν δέδεικται, μέσον θετέον τὸ ὄν, εἰ δ' ὅτι
ἀγαθόν, τὸ τὶ ὄν. ἔστω γὰρ τὸ μὲν Α ἐπιστήμη
ὅτι τὶ ὄν, ἐφ' ᾧ δὲ Β ὄν τι, τὸ δ' ἐφ' ᾧ Γ ἀγαθόν.
ἀληθὲς δὴ τὸ Α τοῦ Β κατηγορεῖν, ἦν γὰρ ἐπιστήμη
τοῦ τινὸς ὄντος ὅτι τὶ ὄν· ἀλλὰ καὶ τὸ Β τοῦ Γ,
35 τὸ γὰρ ἐφ' ᾧ Γ ὄν τι· ὥστε καὶ τὸ Α τοῦ Γ. ἔσται
ἄρα ἐπιστήμη τἀγαθοῦ ὅτι ἀγαθόν· ἦν γὰρ τὸ τὶ ὂν
τῆς ἰδίου σημεῖον οὐσίας. εἰ δὲ τὸ ὂν μέσον ἐτέθη
καὶ πρὸς τῷ ἄκρῳ τὸ ὂν ἁπλῶς καὶ μὴ τὸ τὶ ὂν
ἐλέχθη, οὐκ ἂν ἦν συλλογισμὸς ὅτι ἔστιν ἐπιστήμη
τἀγαθοῦ ὅτι ἀγαθόν, ἀλλ' ὅτι ὄν, οἷον ἐφ' ᾧ τὸ Α
49 b ἐπιστήμη ὅτι ὄν, ἐφ' ᾧ Β ὄν, ἐφ' ᾧ Γ ἀγαθόν.
φανερὸν οὖν ὅτι ἐν τοῖς ἐν μέρει συλλογισμοῖς
οὕτως ληπτέον τοὺς ὅρους.

XXXIX. Δεῖ δὲ καὶ μεταλαμβάνειν ἃ τὸ αὐτὸ δύναται, ὀνόματα ἀντ' ὀνομάτων καὶ λόγους ἀντὶ

[1] ἐπιστητόν τι codd.: om. Boethius, Waitz.

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[a] i.e. major.

instances of supplementary predication the reduplication must be attached to the extreme [a] term.

The arrangement of terms is not the same when a syllogism is proved without qualification and when the proof relates to a particular thing or sense or condition; I mean, *e.g.*, when the good is proved to be an object of knowledge and when it is proved to be an object of knowledge that it is good. If it is proved to be the former, we must posit as the middle term 'that which is'; if to be the latter, with the qualification 'that it is good,' we must posit as the middle 'that which is something.' Let A stand for 'knowledge that it is something,' B for 'that which is something' and C for 'good.' Then it is true to predicate A of B, for *ex hypothesi* there is knowledge of something that it is something. But it is also true to predicate B of C, for that which C represents is something. Hence it is also true to predicate A of C. Therefore there will be knowledge of the good that it is good; for *ex hypothesi* the expression 'that which is something' refers to the thing's particular form of being. But if we had posited 'that which is' as the middle term, and had connected in a proposition with the extreme term the unqualified expression 'that which is' instead of 'that which is something,' there would have been no syllogism proving that there is knowledge of the good that it is good, but only that it is,—*e.g.*, if A had stood for 'knowledge that it is,' B for 'that which is,' and C for 'good.' Thus it is evident that in syllogisms which are thus particularized the terms must be taken in this way.

XXXIX. We must also substitute equivalents, substituting word for word and phrase for phrase, and

49 b λόγων καὶ ὄνομα καὶ λόγον, καὶ ἀεὶ ἀντὶ τοῦ λόγου τοὔνομα λαμβάνειν· ῥᾷον γὰρ ἡ τῶν ὅρων ἔκθεσις. οἷον εἰ μηδὲν διαφέρει εἰπεῖν τὸ ὑποληπτὸν τοῦ δοξαστοῦ μὴ εἶναι γένος ἢ μὴ εἶναι ὅπερ ὑποληπτόν τι τὸ δοξαστόν (ταὐτὸν γὰρ τὸ σημαινόμενον), ἀντὶ τοῦ λόγου τοῦ λεχθέντος τὸ ὑποληπτὸν καὶ τὸ δοξαστὸν ὅρους θετέον.

XL. Ἐπεὶ δ' οὐ ταὐτόν ἐστι τὸ εἶναι τὴν ἡδονὴν ἀγαθὸν καὶ τὸ εἶναι τὴν ἡδονὴν τὸ ἀγαθόν, οὐχ ὁμοίως θετέον τοὺς ὅρους, ἀλλ' εἰ μέν ἐστιν ὁ συλλογισμὸς ὅτι ἡ ἡδονὴ τἀγαθόν, τἀγαθόν, εἰ δ' ὅτι ἀγαθόν, ἀγαθόν. οὕτως κἀπὶ τῶν ἄλλων.

XLI. Οὐκ ἔστι δὲ ταὐτὸν οὔτ' εἶναι οὔτ' εἰπεῖν ὅτι ᾧ τὸ Β ὑπάρχει, τούτῳ παντὶ τὸ Α ὑπάρχει, καὶ τὸ εἰπεῖν τὸ ᾧ παντὶ τὸ Β ὑπάρχει, καὶ τὸ Α παντὶ ὑπάρχει· οὐδὲν γὰρ κωλύει τὸ Β τῷ Γ ὑπάρχειν, μὴ παντὶ δέ. οἷον ἔστω τὸ Β καλόν τὸ δὲ Γ λευκόν. εἰ δὴ λευκῷ τινι ὑπάρχει καλόν, ἀληθὲς εἰπεῖν ὅτι τῷ λευκῷ ὑπάρχει καλόν· ἀλλ' οὐ παντὶ ἴσως. εἰ μὲν οὖν τὸ Α τῷ Β ὑπάρχει, μὴ παντὶ δὲ καθ' οὗ τὸ Β, οὔτ' εἰ παντὶ τῷ Γ τὸ Β οὔτ' εἰ μόνον ὑπάρχει ἀνάγκη τὸ Α, οὐχ ὅτι οὐ παντί, ἀλλ' οὐδ' ὑπάρχειν. εἰ δὲ καθ' οὗ ἂν τὸ Β λέγηται ἀληθῶς τούτῳ παντὶ ὑπάρχει, συμβήσεται τὸ Α, καθ' οὗ παντὸς τὸ Β λέγεται, κατὰ τούτου παντὸς λέγεσθαι. εἰ μέντοι τὸ Α λέγεται καθ' οὗ ἂν τὸ Β λέγηται κατὰ παντός, οὐδὲν κωλύει τῷ Γ ὑπάρχειν τὸ Β, μὴ παντὶ δὲ τὸ Α ἢ ὅλως μὴ ὑπάρχειν. ἐν δὴ τοῖς τρισὶν ὅροις δῆλον ὅτι τὸ καθ' οὗ τὸ Β, παντὸς τὸ Α λέγεσθαι τοῦτ' ἔστι, καθ'

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[a] *Sc.* indefinitely.

Substitution of equivalent expressions for the terms.

interchanging word and phrase, but always preferring the word to the phrase, for this makes it easier to set out the terms. *E.g.*, if it is immaterial whether we say 'the conceivable is not a genus of the imaginable' or 'the imaginable is not identical with some part of the conceivable' (for the meaning is just the same), we must posit as terms the conceivable and the imaginable in preference to the expression which we have quoted.

The force of the definite article must not be ignored.

XL. Since the propositions 'pleasure is a good' and 'pleasure is the good' are not identical, the terms must not be posited identically in both, but if the syllogism is to prove the latter we must posit 'the good,' and if the former, 'good.' So too in all other cases.

Meaning of the proposition 'A is stated of all that of which B is stated.'

XLI. It is not the same, either in fact or to say, that A applies to all of that to which B applies, and that A applies to all of that to all of which B applies; for there is no reason why B should not apply to C, but not to all C. *E.g.*, let B stand for 'beautiful' and C for 'white.' Then if 'beautiful' applies to some white thing, it is true to say that 'beautiful' applies to 'white,' but not, presumably, to all 'white.' Thus if A applies to B, but not to everything of which B is stated, then whether B applies to all C or merely applies to C, not only need A not apply to all C, but it need not apply to C at all. If on the other hand A applies to all that of which B is truly stated, it will follow that A is stated of everything of all of which B is stated. If, however, A is stated[a] of that of all of which B is stated, there is no reason why A should apply to all C or indeed apply to C at all, although B applies to C. With regard to these three terms, then, it is clear that 'A is stated of all of which

ὅσων τὸ Β λέγεται, κατὰ πάντων λέγεσθαι καὶ τὸ Α. καὶ εἰ μὲν κατὰ παντὸς τὸ Β, καὶ τὸ Α οὕτως· εἰ δὲ μὴ κατὰ παντός, οὐκ ἀνάγκη τὸ Α κατὰ παντός.

Οὐ δεῖ δ' οἴεσθαι παρὰ τὸ ἐκτίθεσθαί τι συμβαίνειν ἄτοπον· οὐδὲν γὰρ προσχρώμεθα τῷ τόδε τι εἶναι, ἀλλ' ὥσπερ ὁ γεωμέτρης τὴν ποδιαίαν καὶ εὐθεῖαν τήνδε καὶ ἀπλατῆ εἶναι λέγει οὐκ οὔσας,[1] ἀλλ' οὐχ οὕτως χρῆται ὡς ἐκ τούτων συλλογιζόμενος. ὅλως γὰρ ὃ μή ἐστιν ὡς ὅλον πρὸς μέρος καὶ ἄλλο πρὸς τοῦτο ὡς μέρος πρὸς ὅλον, ἐξ οὐδενὸς τῶν τοιούτων δείκνυσιν ὁ δεικνύων, ὥστε οὐδὲ γίγνεται συλλογισμός. τῷ δ' ἐκτίθεσθαι οὕτω χρώμεθα ὥσπερ καὶ τῷ αἰσθάνεσθαι, τὸν μανθάνοντα λέγοντες· οὐ γὰρ οὕτως ὡς ἄνευ τούτων οὐχ οἷόν τ' ἀποδειχθῆναι, ὥσπερ ἐξ ὧν ὁ συλλογισμός.

XLII. Μὴ λανθανέτω δ' ἡμᾶς ὅτι ἐν τῷ αὐτῷ συλλογισμῷ οὐχ ἅπαντα τὰ συμπεράσματα δι' ἑνὸς σχήματός εἰσιν, ἀλλὰ τὸ μὲν διὰ τούτου τὸ δὲ δι' ἄλλου. δῆλον οὖν ὅτι καὶ τὰς ἀναλύσεις οὕτω ποιητέον. ἐπεὶ δ' οὐ πᾶν πρόβλημα ἐν ἅπαντι σχήματι ἀλλ' ἐν ἑκάστῳ τεταγμένα, φανερὸν ἐκ τοῦ συμπεράσματος ἐν ᾧ σχήματι ζητητέον.

XLIII. Τούς τε πρὸς ὁρισμὸν τῶν λόγων, ὅσοι πρὸς ἕν τι τυγχάνουσι διειλεγμένοι τῶν ἐν τῷ ὅρῳ, πρὸς ὃ διείλεκται θετέον ὅρον, καὶ οὐ τὸν ἅπαντα λόγον· ἧττον γὰρ συμβήσεται ταράττεσθαι διὰ τὸ

[1] *οὖσαν* B²df.

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[a] *Cf. An. Post.* 76 b 39, *Met.* 1078 a 20.

B is stated' means 'A is stated of all things of which B is stated.' And if B is stated of all, so too is A; but if B is not stated of all, A is not necessarily stated of all.

The setting out of terms is used for illustration, not for demonstration.

It must not be supposed that any absurdity results from the setting out of terms. We do not base our argument upon the reality of a particular example; we are doing the same as the geometrician who says that such-and-such a one-foot line or straight line or line without breadth exists when it does not, yet does not use his illustrations in the sense that he argues from them.[a] For in general unless two things are related as whole to part and as part to whole, the man who is trying to prove something can prove nothing from them; and hence no syllogism results. On the contrary, we (I mean the student) use the setting out of terms as one uses sense-perception; we do not use them as though demonstration were impossible without these illustrations, as it would be without the premisses of a syllogism.

The several conclusions of a single compound syllogism may be proved in different figures.

XLII. We must not overlook the fact that not all the conclusions in the same syllogism are effected by means of one figure, but some by one and some by another. Thus it is clear that we must conduct our analysis accordingly. And since not every proposition is proved in every figure, but certain fixed types are proved in each, it will be evident from the form of the conclusion in which figure the inquiry should be conducted.

Choice of terms in syllogisms used to establish definitions.

XLIII. With regard to such arguments as refer to a definition, whenever they are directed to prove some one part of the definition, that part to which the argument is directed, and not the whole formula, should be posited as a term (for so there will be less

μῆκος· οἷον εἰ τὸ ὕδωρ ἔδειξεν ὅτι ὑγρὸν ποτόν, τὸ ποτὸν καὶ τὸ ὕδωρ ὅρους θετέον.

XLIV. Ἔτι δὲ τοὺς ἐξ ὑποθέσεως συλλογισμοὺς οὐ πειρατέον ἀνάγειν· οὐ γὰρ ἔστιν ἐκ τῶν κειμένων ἀνάγειν. οὐ γὰρ διὰ συλλογισμοῦ δεδειγμένοι εἰσίν, ἀλλὰ διὰ συνθήκης ὡμολογημένοι πάντες. οἷον εἰ ὑποθέμενος, ἂν δύναμίς τις μία μὴ ᾖ τῶν ἐναντίων, μηδ' ἐπιστήμην μίαν εἶναι, εἶτα διαλεχθείη ὅτι οὐκ ἔστι πᾶσα[1] δύναμις τῶν ἐναντίων, οἷον τοῦ ὑγιεινοῦ καὶ τοῦ νοσώδους· ἅμα γὰρ ἔσται τὸ αὐτὸ ὑγιεινὸν καὶ νοσῶδες. ὅτι μὲν οὖν οὐκ ἔστι μία πάντων τῶν ἐναντίων δύναμις ἐπιδέδεικται,[2] ὅτι δ' ἐπιστήμη οὐκ ἔστιν οὐ δέδεικται. καίτοι ὁμολογεῖν ἀναγκαῖον· ἀλλ' οὐκ ἐκ συλλογισμοῦ, ἀλλ' ἐξ ὑποθέσεως. τοῦτον μὲν οὖν οὐκ ἔστιν ἀναγαγεῖν, ὅτι δ' οὐ μία δύναμις ἔστιν· οὗτος γὰρ ἴσως καὶ ἦν συλλογισμός, ἐκεῖνο δ' ὑπόθεσις.

Ὁμοίως δὲ καὶ ἐπὶ τῶν διὰ τοῦ ἀδυνάτου περαινομένων· οὐδὲ γὰρ τούτους οὐκ ἔστιν ἀναλύειν, ἀλλὰ τὴν μὲν εἰς τὸ ἀδύνατον ἀπαγωγὴν ἔστι (συλλογισμῷ γὰρ δείκνυται), θάτερον δ' οὐκ ἔστιν· ἐξ ὑποθέσεως γὰρ περαίνεται. διαφέρουσι δὲ τῶν προειρημένων ὅτι ἐν ἐκείνοις μὲν δεῖ προδιομολογήσασθαι εἰ μέλλει συμφήσειν, οἷον ἂν δειχθῇ μία δύναμις τῶν ἐναντίων, καὶ ἐπιστήμην εἶναι τὴν

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[1] πᾶσα B^1c^1 : πάντων A^1 : μία $A^2B^2c^2$.

[2] ἐπιδέδεικται A^1Bc^1 : ἀποδέδεικται A^2c^2dfm.

likelihood of confusion due to the length of the term): *e.g.*, if it is shown that water is drinkable liquid, the terms posited should be ' drinkable ' and ' water.'

Hypothetical syllogisms cannot be reduced.

XLIV. Further, we should not attempt to reduce hypothetical syllogisms, because it is impossible to reduce them by proceeding from the premisses laid down, since they have not been proved by a syllogism, but have all been admitted by agreement. *E.g.*, suppose that, after assuming that unless there is some one potentiality for contraries there cannot be one science of them, you should then argue that not every potentiality is for contraries, *e.g.*, for the healthy and for the diseased, for if there is, the same thing will be at the same time healthy and diseased : then it has been shown that there is not one potentiality for all contraries, but it has not been shown that there is not one science. It is true that the latter must necessarily be admitted, but only *ex hypothesi* and not as the result of syllogistic proof. The latter argument, then, cannot be reduced, but the argument that there is not one potentiality can ; for presumably this actually was a syllogism, whereas the former was a hypothesis.

Similarly too in the case of arguments which are established *per impossibile.* These too cannot be analysed. The reduction *ad impossibile* can be analysed, because it is proved by a syllogism ; but the rest of the argument cannot, because the conclusion is drawn from a hypothesis. These types differ from those described above in that in the former if the conclusion is to be admitted some preliminary argument is necessary, *e.g.*, that if it be shown that there is one potentiality for contraries, the science which studies them is also the same. But in these

αὐτήν· ἐνταῦθα δὲ καὶ μὴ προδιομολογησάμενοι συγχωροῦσι διὰ τὸ φανερὸν εἶναι τὸ ψεῦδος, οἷον τεθείσης τῆς διαμέτρου συμμέτρου τὸ τὰ περιττὰ ἴσα εἶναι τοῖς ἀρτίοις.

Πολλοὶ δὲ καὶ ἕτεροι περαίνονται ἐξ ὑποθέσεως, οὓς ἐπισκέψασθαι δεῖ καὶ διασημῆναι καθαρῶς. τίνες μὲν οὖν αἱ διαφοραὶ τούτων καὶ ποσαχῶς γίγνεται τὸ ἐξ ὑποθέσεως ὕστερον ἐροῦμεν· νῦν δὲ τοσοῦτον ἡμῖν ἔστω φανερόν, ὅτι οὐκ ἔστιν ἀναλύειν εἰς τὰ σχήματα τοὺς τοιούτους συλλογισμούς· καὶ δι' ἣν αἰτίαν, εἰρήκαμεν.

XLV. Ὅσα δ' ἐν πλείοσι σχήμασι δείκνυται τῶν προβλημάτων, ἢν ἐν θατέρῳ συλλογισθῇ, ἔστιν ἀναγαγεῖν τὸν συλλογισμὸν εἰς θάτερον, οἷον τὸν ἐν τῷ πρώτῳ στερητικὸν εἰς τὸ δεύτερον καὶ τὸν ἐν τῷ μέσῳ εἰς τὸ πρῶτον, οὐχ ἅπαντας δὲ ἀλλ' ἐνίους. ἔσται δὲ φανερὸν ἐν τοῖς ἑπομένοις. εἰ γὰρ τὸ Α μηδενὶ τῷ Β τὸ δὲ Β παντὶ τῷ Γ, τὸ Α οὐδενὶ τῷ Γ. οὕτω μὲν οὖν τὸ πρῶτον σχῆμα, ἐὰν δ' ἀντιστραφῇ τὸ στερητικόν, τὸ μέσον ἔσται· τὸ γὰρ Β τῷ μὲν Α οὐδενὶ τῷ δὲ Γ παντὶ ὑπάρχει. ὁμοίως δὲ καὶ εἰ μὴ καθόλου ἀλλ' ἐν μέρει ὁ συλλογισμός, οἷον εἰ τὸ μὲν Α μηδενὶ τῷ Β τὸ δὲ Β τινὶ τῷ Γ· ἀντιστραφέντος γὰρ τοῦ στερητικοῦ τὸ μέσον ἔσται σχῆμα.

Τῶν δ' ἐν τῷ δευτέρῳ συλλογισμῶν οἱ μὲν καθόλου ἀναχθήσονται εἰς τὸ πρῶτον, τῶν δ' ἐν μέρει ἅτερος μόνον. ἔστω γὰρ τὸ Α τῷ μὲν Β μηδενὶ τῷ δὲ Γ παντὶ ὑπάρχον. ἀντιστραφέντος

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[a] *Cf.* 41 a 26.

[b] There is no such description to which we can refer.

[c] Celarent.

[d] Cesare.

examples the conclusions are admitted even without a preliminary agreement, because the fallacy is obvious ; as for example that if the diagonal of a square is taken to be commensurable, odd numbers are equal to even ones.[a]

Many other conclusions also are reached by hypothesis, and these require further study and clear explanation. What their differences are, and in how many ways a hypothetical conclusion is effected, will be described later.[b] For the present let us regard this much as evident : that it is impossible to analyse such syllogisms as these into the figures. We have explained why this is so.

Reduction of syllogism from one figure to another. (1) First figure into second.

XLV. With regard to such propositions as are proved in more than one figure, if a conclusion is drawn in one figure, it is possible to reduce the syllogism to another figure ; *e.g.*, a negative syllogism in the first figure[c] can be reduced to the second,[d] and in the middle figure—not all, however, but only some of them[e]—to the first. The principle will be clearly seen in the following examples. If A applies to no B, and B applies to all C, A applies to no C. In this form we have the first figure. But if the negative proposition is converted, we shall have the middle figure ; for B applies to no A but to all C. Similarly too if the syllogism is not universal but particular, *e.g.*, if A applies to no B and B applies to some C ; on the conversion of the negative proposition we shall have the middle figure.

(2) Second figure into first.

Of syllogisms in the second figure, those which are universal can be reduced to the first figure, but only one of the two particular syllogisms can be so reduced. Let A be taken as applying to no B but to all C.

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[e] See next paragraph.

οὖν τοῦ στερητικοῦ τὸ πρῶτον ἔσται σχῆμα· τὸ μὲν γὰρ Β οὐδενὶ τῷ Α, τὸ δὲ Α παντὶ τῷ Γ ὑπάρξει. ἐὰν δὲ τὸ κατηγορικὸν ᾖ πρὸς τῷ Β τὸ δὲ στερητικὸν πρὸς τῷ Γ, πρῶτον ὅρον θετέον τὸ Γ· τοῦτο γὰρ οὐδενὶ τῷ Α, τὸ δὲ Α παντὶ τῷ Β· ὥστ' οὐδενὶ τῷ Β τὸ Γ. οὐδ' ἄρα τὸ Β τῷ Γ οὐδενί· ἀντιστρέφει γὰρ τὸ στερητικόν. ἐὰν δ' ἐν μέρει ᾖ ὁ συλλογισμός, ὅταν μὲν ᾖ τὸ στερητικὸν πρὸς τῷ μείζονι ἄκρῳ, ἀναχθήσεται εἰς τὸ πρῶτον, οἷον εἰ τὸ Α μηδενὶ τῷ Β τῷ δὲ Γ τινί· ἀντιστραφέντος γὰρ τοῦ στερητικοῦ τὸ πρῶτον ἔσται σχῆμα· τὸ μὲν γὰρ Β οὐδενὶ τῷ Α, τὸ δὲ Α τινὶ τῷ Γ. ὅταν δὲ τὸ κατηγορικόν, οὐκ ἀναλυθήσεται, οἷον εἰ τὸ Α τῷ μὲν Β παντὶ τῷ δὲ Γ οὐ παντί· οὔτε γὰρ δέχεται ἀντιστροφὴν τὸ ΑΒ, οὔτε γενομένης ἔσται συλλογισμός.

Πάλιν οἱ μὲν ἐν τῷ τρίτῳ σχήματι οὐκ ἀναλυθήσονται πάντες εἰς τὸ πρῶτον, οἱ δ' ἐν τῷ πρώτῳ πάντες εἰς τὸ τρίτον. ὑπαρχέτω γὰρ τὸ Α παντὶ τῷ Β, τὸ δὲ Β τινὶ τῷ Γ. οὐκοῦν ἐπειδὴ ἀντιστρέφει τὸ ἐν μέρει κατηγορικόν, ὑπάρξει τὸ Γ τινὶ τῷ Β· τὸ δὲ Α παντὶ ὑπῆρχεν, ὥστε γίγνεται τὸ τρίτον σχῆμα. καὶ εἰ στερητικὸς ὁ συλλογισμὸς ὡσαύτως· ἀντιστρέφει γὰρ τὸ ἐν μέρει κατηγορικόν, ὥστε τὸ μὲν Α οὐδενὶ τῷ Β, τὸ δὲ Γ τινὶ ὑπάρξει.

Τῶν δ' ἐν τῷ τελευταίῳ σχήματι συλλογισμῶν εἷς μόνος οὐκ ἀναλύεται εἰς τὸ πρῶτον, ὅταν μὴ καθόλου τεθῇ τὸ στερητικόν, οἱ δ' ἄλλοι πάντες ἀναλύονται. κατηγορείσθω γὰρ παντὸς τοῦ Γ τὸ Α καὶ τὸ Β· οὐκοῦν ἀντιστρέψει τὸ Γ πρὸς ἑκάτερον

Then on the conversion of the negative proposition we shall have the first figure; for B will apply to no A, but A will apply to all C. But if the affirmative statement is attached to B and the negative to C, C must be posited as first term; for C applies to no A, and A to all B: hence C applies to no B. Therefore B also applies to no C, for the negative proposition is convertible. If, however, the syllogism is particular, when the negative statement is attached to the major extreme, the syllogism can be reduced to the first figure,—for example, if A applies to no B but to some C; for on the conversion of the negative proposition we shall have the first figure, since B applies to no A, and A applies to some C. But when the affirmative statement is attached to the major term, the syllogism cannot be analysed: *e.g.*, if A applies to all B but not to all C. For the statement AB does not admit of conversion, nor, even if conversion took place, would there be a syllogism.

(3) First figure into third.

Again, syllogisms in the third figure cannot all be resolved into the first, although those in the first can all be resolved into the third. Let A apply to all B, and B apply to some C. Then when the particular affirmative statement is converted, C will apply to some B. But it was assumed that A applies to all B, and so we get the third figure. The same also holds good if the syllogism is negative; for the particular affirmative statement is convertible, and so A will apply to no B and C to some B.

(4) Third figure into first.

Of the syllogisms in the last figure only one cannot be resolved into the first figure, viz. when the negative statement is not universal. All the rest can be so resolved. Let A and B be predicated of all C. Then C will convert into a particular relation with each of

51 a ἐπὶ μέρους· ὑπάρχει ἄρα τινὶ τῷ Β. ὥστ' ἔσται τὸ πρῶτον σχῆμα, εἰ τὸ μὲν Α παντὶ τῷ Γ τὸ δὲ Γ τινὶ τῶν Β. καὶ εἰ τὸ μὲν Α παντὶ τῷ Γ τὸ δὲ Β τινί, ὁ αὐτὸς λόγος· ἀντιστρέφει γὰρ πρὸς τὸ Γ τὸ Β. ἐὰν δὲ τὸ μὲν Β παντὶ τῷ Γ τὸ δὲ Α τινὶ τῷ Γ, πρῶτος ὅρος θετέος τὸ Β· τὸ γὰρ Β παντὶ τῷ Γ τὸ δὲ Γ τινὶ τῷ Α, ὥστε τὸ Β τινὶ τῷ Α. ἐπεὶ δ' ἀντιστρέφει τὸ ἐν μέρει, καὶ τὸ Α τινὶ τῷ Β ὑπάρξει.

Καὶ εἰ στερητικὸς ὁ συλλογισμός, καθόλου τῶν ὅρων ὄντων, ὁμοίως ληπτέον. ὑπαρχέτω γὰρ τὸ Β παντὶ τῷ Γ, τὸ δὲ Α μηδενί· οὐκοῦν τινὶ τῷ Β ὑπάρξει τὸ Γ, τὸ δὲ Α οὐδενὶ τῷ Γ, ὥστ' ἔσται μέσον τὸ Γ. ὁμοίως δὲ καὶ εἰ τὸ μὲν στερητικὸν καθόλου τὸ δὲ κατηγορικὸν ἐν μέρει· τὸ μὲν γὰρ Α οὐδενὶ τῷ Γ, τὸ δὲ Γ τινὶ τῶν Β ὑπάρξει. ἐὰν δ' ἐν μέρει ληφθῇ τὸ στερητικόν, οὐκ ἔσται ἀνάλυσις, οἷον εἰ τὸ μὲν Β παντὶ τῷ Γ τὸ δὲ Α τινὶ μὴ ὑπάρχει· ἀντιστραφέντος γὰρ τοῦ ΒΓ ἀμφότεραι αἱ προτάσεις ἔσονται κατὰ μέρος.

Φανερὸν δὲ καὶ ὅτι πρὸς τὸ ἀναλύειν εἰς ἄλληλα τὰ σχήματα ἡ πρὸς τῷ ἐλάττονι ἄκρῳ πρότασις ἀντιστρεπτέα ἐν ἀμφοτέροις τοῖς σχήμασι· ταύτης γὰρ μετατιθεμένης ἡ μετάβασις ἐγίγνετο.

Τῶν δ' ἐν τῷ μέσῳ σχήματι ἅτερος μὲν ἀναλύεται ἅτερος δ' οὐκ ἀναλύεται εἰς τὸ τρίτον. ὅταν μὲν γὰρ ᾖ τὸ καθόλου στερητικόν, ἀναλύεται· εἰ γὰρ τὸ Α μηδενὶ τῷ Β τῷ δὲ Γ τινί, ἀμφότερα ὁμοίως ἀντιστρέφει πρὸς τὸ Α, ὥστε τὸ μὲν Β οὐδενὶ τῷ Α, τὸ δὲ Γ τινί· μέσον ἄρα τὸ Α. ὅταν

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[a] *Sc.* first and third.

these terms. Therefore it applies to some B. Thus we shall have the first figure, if A applies to all C, and C to some B. The same principle holds also if A applies to all C and B to some C; for B is convertible with C. If on the other hand B applies to all C and A to some C, B must be taken as the first term; for B applies to all C, and C to some A, so that B applies to some A; and since the particular statement is convertible, A will also apply to some B.

Also, if the syllogism is negative, provided that the terms are related universally, it should be treated in the same way. Let B apply to all, but A to no C. Then C will apply to some B, and A to no C, so that C will be the middle term. Similarly too if the negative statement is universal and the affirmative particular; for A will apply to no C, and C will apply to some B. If, however, the negative statement is taken as particular, there can be no resolution: *e.g.*, if B applies to all C, and A does not apply to some C; for on the conversion of the premiss BC both the premisses will be particular.

It is also evident that for the purpose of resolving the figures[a] into one another the premiss which is attached to the minor extreme must be converted in both figures; for we have seen that the change from one to another takes place by the substitution of this premiss.

(5) Second figure into third.

Of the syllogisms in the middle figure, one can be resolved into the third figure and the other cannot. (1) When the universal statement is negative, resolution is possible; for if A applies to no B, but to some C, both statements alike are convertible with respect to A, so that B applies to no A and C to some A. Therefore A is the middle term. (2) When A applies

51a
δὲ τὸ Α παντὶ τῷ Β τῷ δὲ Γ τινὶ μὴ ὑπάρχῃ, οὐκ
ἔσται ἀνάλυσις· οὐδετέρα γὰρ τῶν προτάσεων ἐκ
τῆς ἀντιστροφῆς καθόλου.

Καὶ οἱ ἐκ τοῦ τρίτου δὲ σχήματος ἀναλυθήσονται
35 εἰς τὸ μέσον ὅταν ᾖ καθόλου τὸ στερητικόν, οἷον εἰ
τὸ Α μηδενὶ τῷ Γ, τὸ δὲ Β τινὶ ἢ παντί· καὶ γὰρ τὸ
Γ τῷ μὲν Α οὐδενὶ τῷ δὲ Β τινὶ ὑπάρξει. ἐὰν δ'
ἐπὶ μέρους ᾖ τὸ στερητικὸν οὐκ ἀναλυθήσεται· οὐ
γὰρ δέχεται ἀντιστροφὴν τὸ ἐν μέρει ἀποφατικόν.

40 Φανερὸν οὖν ὅτι οἱ αὐτοὶ συλλογισμοὶ οὐκ ἀναλύονται
ἐν τούτοις τοῖς σχήμασιν οἵπερ οὐδ' εἰς τὸ
51b πρῶτον ἀνελύοντο, καὶ ὅτι εἰς τὸ πρῶτον σχῆμα
τῶν συλλογισμῶν ἀναγομένων οὗτοι μόνοι διὰ τοῦ
ἀδυνάτου περαίνονται.

Πῶς μὲν οὖν δεῖ τοὺς συλλογισμοὺς ἀνάγειν, καὶ
ὅτι ἀναλύεται τὰ σχήματα εἰς ἄλληλα, φανερὸν ἐκ
5 τῶν εἰρημένων.

XLVI. Διαφέρει δέ τι ἐν τῷ κατασκευάζειν ἢ
ἀνασκευάζειν τὸ ὑπολαμβάνειν ἢ ταὐτὸν ἢ ἕτερον
σημαίνειν τὸ μὴ εἶναι τοδὶ καὶ εἶναι μὴ τοῦτο, οἷον
τὸ μὴ εἶναι λευκὸν τῷ εἶναι μὴ λευκόν. οὐ γὰρ
ταὐτὸν σημαίνει, οὐδ' ἔστιν ἀπόφασις τοῦ εἶναι
10 λευκὸν τὸ εἶναι μὴ λευκόν, ἀλλὰ τὸ μὴ εἶναι λευκόν.
λόγος δὲ τούτου ὅδε.

Ὁμοίως γὰρ ἔχει τὸ δύναται βαδίζειν πρὸς τὸ
δύναται οὐ βαδίζειν τῷ ἔστι λευκόν πρὸς τὸ ἔστιν
οὐ λευκόν, καὶ ἐπίσταται τἀγαθόν πρὸς τὸ ἐπίσταται
τὸ οὐκ ἀγαθόν. τὸ γὰρ ἐπίσταται τἀγαθόν
ἢ ἔστιν ἐπιστάμενος τἀγαθόν οὐδὲν διαφέρει, οὐδὲ
15 τὸ δύναται βαδίζειν ἢ ἔστι δυνάμενος βαδίζειν·

to all B, but does not apply to some C, there can be no resolution; for neither premiss is universal after conversion.

(6) Third figure into second.

The syllogisms of the third figure can also be resolved into the middle figure when the negative statement is universal, *e.g.*, if A applies to no C and B applies to some or all of C; for then C will apply to no A but to some B. If, however, the negative statement is particular, resolution will be impossible, for the particular negative does not admit of conversion.

Thus it is evident (1) that the types of syllogism which cannot be resolved in these figures are the same as those which we saw could not be resolved into the first figure; and (2) that when syllogisms are reduced to the first figure these alone are established *per impossibile.*

It is evident, then, from the foregoing account how syllogisms should be reduced; and also that the figures can be resolved into one another.

'X is not Y' does not mean the same as 'X is not-Y.'

XLVI. It makes no little difference in establishing or refuting a proposition whether we suppose that 'not to be so-and-so' and 'to be not-so-and-so' mean the same or something different: *e.g.*, whether 'not to be white' means the same as 'to be not-white.' For it does not mean the same; the negation of 'to be white' is not 'to be not-white' but 'not to be white.' The explanation of this is as follows:

'He can walk' is to 'he can not-walk' as 'it is white' is to 'it is not-white,' and as 'he understands the good' is to 'he understands the not-good.' For there is no difference between 'he understands the good' and 'he is understanding of the good,' nor is there between 'he can walk' and 'he is able to walk.'

51 b ὥστε καὶ τὰ ἀντικείμενα, οὐ δύναται βαδίζειν—οὐκ ἔστι δυνάμενος βαδίζειν. εἰ οὖν τὸ οὐκ ἔστι δυνάμενος βαδίζειν ταὐτὸ σημαίνει καὶ ἔστι δυνάμενος οὐ βαδίζειν ἢ μὴ βαδίζειν, ταῦτά γε ἅμα ὑπάρξει ταὐτῷ (ὁ γὰρ αὐτὸς δύναται καὶ βαδίζειν καὶ μὴ βαδίζειν, καὶ ἐπιστήμων τἀγαθοῦ καὶ τοῦ μὴ ἀγαθοῦ ἐστί)· φάσις δὲ καὶ ἀπόφασις οὐχ ὑπάρχουσιν αἱ ἀντικείμεναι ἅμα τῷ αὐτῷ. ὥσπερ οὖν οὐ ταὐτό ἐστι τὸ μὴ ἐπίστασθαι τἀγαθὸν καὶ ἐπίστασθαι τὸ μὴ ἀγαθόν, οὐδ' εἶναι μὴ ἀγαθὸν καὶ μὴ εἶναι ἀγαθὸν ταὐτόν. τῶν γὰρ ἀνὰ λόγον ἐὰν θάτερα ᾖ ἕτερα, καὶ θάτερα. οὐδὲ τὸ εἶναι μὴ ἴσον καὶ τὸ μὴ εἶναι ἴσον· τῷ μὲν γὰρ ὑπόκειταί τι, τῷ ὄντι μὴ ἴσῳ, καὶ τοῦτ' ἔστι τὸ ἄνισον· τῷ δ' οὐδέν. διόπερ ἴσον μὲν ἢ ἄνισον οὐ πᾶν, ἴσον δ' ἢ οὐκ ἴσον πᾶν.

Ἔτι τὸ ἔστιν οὐ λευκὸν ξύλον καὶ οὐκ ἔστι λευκὸν ξύλον οὐχ ἅμα ὑπάρχει. εἰ γάρ ἐστι ξύλον οὐ λευκόν, ἔσται ξύλον· τὸ δὲ μὴ ὂν λευκὸν ξύλον οὐκ ἀνάγκη ξύλον εἶναι. ὥστε φανερὸν ὅτι οὐκ ἔστι τοῦ ἔστιν ἀγαθόν τὸ ἔστιν οὐκ ἀγαθόν ἀπόφασις. εἰ οὖν κατὰ παντὸς ἑνὸς ἢ φάσις ἢ ἀπόφασις ἀληθής, εἰ μή ἐστιν ἀπόφασις, δῆλον ὡς κατάφασις ἄν πως εἴη. καταφάσεως δὲ πάσης ἀπόφασίς ἐστι· καὶ ταύτης ἄρα τὸ οὐκ ἔστιν οὐκ ἀγαθόν.

Ἔχει δὲ τάξιν τήνδε πρὸς ἄλληλα. ἔστω τὸ εἶναι ἀγαθὸν ἐφ' οὗ Α, τὸ δὲ μὴ εἶναι ἀγαθὸν ἐφ' οὗ Β, τὸ δὲ εἶναι μὴ ἀγαθὸν ἐφ' οὗ Γ, ὑπὸ τὸ Β, τὸ δὲ μὴ εἶναι μὴ ἀγαθὸν ἐφ' οὗ Δ, ὑπὸ τὸ Α. παντὶ δὴ

Hence the opposite statements, 'he cannot walk,' 'he is not able to walk,' are also identical. If, then, 'he is not able to walk' means the same as 'he is able not to walk,' these attributes will apply at the same time to the same subject (for the same person can both walk and not walk, or is understanding both of the good and of the not-good). But an assertion and its opposite negation do not apply at the same time to the same subject. Therefore just as 'not to understand the good' and 'to understand the not-good' are not the same, so too 'to be not-good' and 'not to be good' are not the same; for if one pair of corresponding terms in an analogical group is different, so is the other. Nor is 'to be not-equal' the same as 'not to be equal'; for the former, 'that which is not equal,' has a definite subject, viz. the unequal; but the latter has none. For this reason everything is either equal or unequal, but not everything is either equal or not equal.

Again, the statements 'the wood is not white' and 'it is not white wood' are not applicable to the same subject; for if wood is not white, it will be wood, but that which is not white wood is not necessarily wood at all. Hence it is evident that 'it is not-good' is not the negation of 'it is good.' If, then, either the assertion or the negation is true of every single thing, if the negation is not true, clearly the affirmation must in some sense be true. But every affirmation has a negation; and therefore the negation of the affirmation in question is 'it is not not-good.'

Now these terms are related to one another as follows. Let A stand for 'to be good,' B for 'not to be good,' C for 'to be not-good' (this falls under B) and D for 'not to be not-good' (this falls under A).

ὑπάρξει ἢ τὸ Α ἢ τὸ Β, καὶ οὐδενὶ τῷ αὐτῷ· καὶ ἢ τὸ Γ ἢ τὸ Δ, καὶ οὐδενὶ τῷ αὐτῷ. καὶ ᾧ τὸ Γ, ἀνάγκη τὸ Β παντὶ ὑπάρχειν. εἰ γὰρ ἀληθὲς εἰπεῖν ὅτι οὐ λευκόν, καὶ ὅτι οὐκ ἔστι λευκὸν ἀληθές· ἀδύνατον γὰρ ἅμα εἶναι λευκὸν καὶ εἶναι μὴ λευκόν, ἢ εἶναι ξύλον οὐ λευκὸν καὶ εἶναι ξύλον λευκόν· ὥστ' εἰ μὴ ἡ κατάφασις, ἡ ἀπόφασις ὑπάρξει. τῷ δὲ Β τὸ Γ οὐκ ἀεί· ὃ γὰρ ὅλως μὴ ξύλον, οὐδὲ ξύλον ἔσται οὐ λευκόν. ἀνάπαλιν τοίνυν, ᾧ τὸ Α, τὸ Δ παντί. ἢ γὰρ τὸ Γ ἢ τὸ Δ· ἐπεὶ δ' οὐχ οἷόν τε ἅμα εἶναι μὴ λευκὸν καὶ λευκόν, τὸ Δ ὑπάρξει. κατὰ γὰρ τοῦ ὄντος λευκοῦ ἀληθὲς εἰπεῖν ὅτι οὐκ ἔστιν οὐ λευκόν. κατὰ δὲ τοῦ Δ οὐ παντὸς τὸ Α· κατὰ γὰρ τοῦ ὅλως μὴ ὄντος ξύλου οὐκ ἀληθὲς τὸ Α εἰπεῖν, ὡς ἔστι ξύλον[1] λευκόν· ὥστε τὸ Δ ἀληθές, τὸ δ' Α οὐκ ἀληθές, ὅτι ξύλον λευκόν. δῆλον δ' ὅτι καὶ τὸ ΑΓ οὐδενὶ τῷ αὐτῷ καὶ τὸ Β καὶ τὸ Δ ἐνδέχεται τινὶ τῷ αὐτῷ ὑπάρξαι.

Ὁμοίως δ' ἔχουσι καὶ αἱ στερήσεις πρὸς τὰς κατηγορίας ταύτῃ τῇ θέσει. ἴσον ἐφ' οὗ τὸ Α, οὐκ ἴσον ἐφ' οὗ τὸ Β, ἄνισον ἐφ' οὗ Γ, οὐκ ἄνισον ἐφ' οὗ Δ.

Καὶ ἐπὶ πολλῶν δέ, ὧν τοῖς μὲν ὑπάρχει τοῖς δ' οὐχ ὑπάρχει ταὐτό, ἡ μὲν ἀπόφασις ὁμοίως ἀληθεύοιτ' ἄν, ὅτι οὐκ ἔστι λευκὰ πάντα ἢ ὅτι οὐκ ἔστι λευκὸν ἕκαστον· ὅτι δ' ἐστὶν οὐ λευκὸν ἕκαστον ἢ πάντα ἐστὶν οὐ λευκὰ ψεῦδος. ὁμοίως δὲ καὶ τοῦ ἔστι πᾶν ζῷον λευκὸν οὐ τὸ ἔστιν οὐ λευκὸν ἅπαν ζῷον ἀπόφασις (ἄμφω γὰρ ψευδεῖς), ἀλλὰ τὸ οὐκ

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[1] οὐ post ξύλον add. A : δ' supra lineam B^1 : del. C.

Then either A or B will apply to everything, but they can never both apply to the same subject; and either C or D will apply to everything, but they can never both apply to the same subject. Also B must apply to everything to which C applies. For if it is true to say 'it is not-white,' it is also true to say 'it is not white'; since it is impossible that a thing should at the same time be white and not-white, or that wood should be not-white and white; so that if the affirmation does not apply, the negation will. But C does not always apply to B; for that which is not wood at all cannot be white wood either. Conversely then D will apply to everything to which A applies; for either C or D must apply; and since it is not possible to be at the same time not-white and white, D will apply; for it is true to state of that which is white that it is not not-white. But A cannot be stated of all D; for it is not true to state of that which is not wood at all that it is A, *i.e.*, that it is white wood. Hence D is true, but A, that it is white wood, is not true. It is clear that the combination AC too can never apply to the same subject, whereas both B and D may sometimes apply to the same subject.

The relation of privative to positive terms in this system is similar. A stands for equal, B for not equal, C for unequal, D for not unequal.

Also in the case of plural subjects to some members of which the same attribute applies while to others it does not apply, the negation can be predicated with equal truth: that not all things are white, or that not everything is white; but that everything is not-white or that all things are not-white is false. Similarly the negation of 'every animal is white' is not 'every animal is not-white' (for both statements are

52 a ἔστι πᾶν ζῷον λευκόν. ἐπεὶ δὲ δῆλον ὅτι ἕτερον σημαίνει τὸ ἔστιν οὐ λευκὸν καὶ οὐκ ἔστι λευκόν, καὶ τὸ μὲν κατάφασις τὸ δ᾽ ἀπόφασις, φανερὸν ὡς οὐχ ὁ αὐτὸς τρόπος τοῦ δεικνύναι ἑκάτερον, οἷον ὅτι ὃ ἂν ᾖ ζῷον οὐκ ἔστι λευκὸν ἢ ἐνδέχεται μὴ εἶναι λευκόν, καὶ ὅτι ἀληθὲς εἰπεῖν μὴ λευκόν· τοῦτο γάρ ἐστιν εἶναι μὴ λευκόν. ἀλλὰ τὸ μὲν ἀληθὲς εἰπεῖν ἔστι λευκὸν εἴτε μὴ λευκὸν ὁ αὐτὸς τρόπος· κατασκευαστικῶς γὰρ ἄμφω διὰ τοῦ πρώτου δείκνυται σχήματος· τὸ γὰρ ἀληθὲς τῷ ἔστιν ὁμοίως τάττεται· τοῦ γὰρ ἀληθὲς εἰπεῖν λευκὸν οὐ τὸ ἀληθὲς εἰπεῖν μὴ λευκὸν ἀπόφασις, ἀλλὰ τὸ μὴ ἀληθὲς εἰπεῖν λευκόν. εἰ δὴ ἔσται[1] ἀληθὲς εἰπεῖν ὃ ἂν ᾖ ἄνθρωπος μουσικὸν εἶναι ἢ μὴ μουσικὸν εἶναι, ὃ ἂν ᾖ ζῷον ληπτέον ἢ εἶναι μουσικὸν ἢ εἶναι μὴ μουσικόν, καὶ δέδεικται. τὸ δὲ μὴ εἶναι μουσικὸν ὃ ἂν ᾖ ἄνθρωπος ἀνασκευαστικῶς δείκνυται κατὰ τοὺς εἰρημένους τρόπους τρεῖς.

Ἁπλῶς δ᾽ ὅταν οὕτως ἔχῃ τὸ Α καὶ τὸ Β ὥσθ᾽ ἅμα μὲν τῷ αὐτῷ μὴ ἐνδέχεσθαι παντὶ δὲ ἐξ ἀνάγκης θάτερον, καὶ πάλιν τὸ Γ καὶ τὸ Δ ὡσαύτως, ἕπηται δὲ τῷ Γ τὸ Α καὶ μὴ ἀντιστρέφῃ, καὶ τῷ Β τὸ Δ ἀκολουθήσει καὶ οὐκ ἀντιστρέψει· καὶ τὸ μὲν Α καὶ τὸ Δ ἐνδέχεται τῷ αὐτῷ, τὸ δὲ Β καὶ Γ οὐκ ἐνδέχεται.

Πρῶτον μὲν οὖν ὅτι τῷ Β τὸ Δ ἕπεται[2] ἐνθένδε φανερόν· ἐπεὶ γὰρ παντὶ τῶν ΓΔ θάτερον ἐξ ἀνάγκης, ᾧ δὲ τὸ Β οὐκ ἐνδέχεται τὸ Γ διὰ τὸ

[1] ἔσται Jenkinson : ἔστιν codd.

[2] τὸ Δ ἕπεται ABC : ἕπεται τὸ Δ c, Bekker.

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[a] i.e. the uses of the two expressions are parallel.

false) but 'not every animal is white.' And since it is clear that 'it is not-white' and 'it is not white' differ in meaning, and that one is an affirmation and the other a negation, it is evident that the method of proof is not the same in both cases: viz. to prove the statement that whatever is an animal is not white, or may not be white, and the statement that it is true to say that it is not-white; for this is what 'to be not-white' means. But the same method of proof applies to the statements that it is true to say that it is white, and that it is true to say that it is not-white; for both are proved constructively by means of the first figure, since 'it is true' ranks with 'it is'[a]; for the negation of 'it is true to call it white' is not 'it is true to call it not-white' but 'it is not true to call it white.' If, then, it is to be true to say that whatever is a man is either cultured or not cultured, assume that whatever is an animal is either cultured or not cultured, and the proof is accomplished. 'That whatever is a man is not cultured' is proved destructively by the three moods already described.[b]

In general when A and B are so related that they cannot apply at the same time to the same subject, yet one or other of them necessarily applies to everything; and when C and D are similarly related, and A is a consequent of C, and the relation is not reversible: then D will be a consequent of B, and this relation will not be reversible. Also A and D may apply to the same subject, but B and C cannot.

(1) That B is a consequent of D is evident from the following proof. Since one or other of the terms C and D necessarily applies to everything, and C cannot apply to that to which B applies, because C implies

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[b] Celarent, Cesare and Camestres.

52 b
συνεπιφέρειν τὸ Α, τὸ δὲ Α καὶ Β μὴ ἐνδέχεσθαι τῷ αὐτῷ, φανερὸν ὅτι τὸ Δ ἀκολουθήσει. πάλιν ἐπεὶ τῷ Α τὸ Γ οὐκ ἀντιστρέφει, παντὶ δὲ τὸ Γ ἢ τὸ Δ, ἐνδέχεται τὸ Α καὶ τὸ Δ τῷ αὐτῷ ὑπάρχειν· τὸ δέ γε Β καὶ τὸ Γ οὐκ ἐνδέχεται διὰ τὸ συνακολουθεῖν τῷ Γ τὸ Α· συμβαίνει γάρ τι ἀδύνατον. φανερὸν οὖν ὅτι οὐδὲ τῷ Δ τὸ Β ἀντιστρέφει, ἐπείπερ ἐγχωρεῖ ἅμα τὸ Δ καὶ τὸ Α ὑπάρχειν.

Συμβαίνει δ' ἐνίοτε καὶ ἐν τῇ τοιαύτῃ τάξει τῶν ὅρων ἀπατᾶσθαι διὰ τὸ μὴ τὰ ἀντικείμενα λαμβάνειν ὀρθῶς ὧν ἀνάγκη παντὶ θάτερον ὑπάρχειν, οἷον εἰ τὸ Α καὶ τὸ Β μὴ ἐνδέχεται ἅμα τῷ αὐτῷ, ἀνάγκη δ' ὑπάρχειν, ᾧ μὴ θάτερον, θάτερον· καὶ πάλιν τὸ Γ καὶ τὸ Δ ὡσαύτως, ᾧ δὲ τὸ Γ, παντὶ ἕπεται τὸ Α. συμβήσεται γὰρ ᾧ τὸ Δ τὸ Β ὑπάρχειν ἐξ ἀνάγκης, ὅπερ ἐστὶ ψεῦδος. εἰλήφθω γὰρ ἀπόφασις τῶν ΑΒ ἡ ἐφ' ᾧ Ζ, καὶ πάλιν τῶν ΓΔ ἡ ἐφ' ᾧ Θ. ἀνάγκη δὴ παντὶ ἢ τὸ Α ἢ τὸ Ζ, ἢ γὰρ τὴν φάσιν ἢ τὴν ἀπόφασιν· καὶ πάλιν ἢ τὸ Γ ἢ τὸ Θ, φάσις γὰρ καὶ ἀπόφασις· καὶ ᾧ τὸ Γ παντὶ τὸ Α ὑπόκειται· ὥστε ᾧ τὸ Ζ παντὶ τὸ Θ. πάλιν ἐπεὶ τῶν ΖΒ παντὶ θάτερον καὶ τῶν ΘΔ ὡσαύτως, ἀκολουθεῖ δὲ τῷ Ζ το Θ, καὶ τῷ Δ ἀκολουθήσει τὸ Β· τοῦτο γὰρ ἴσμεν. εἰ ἄρα τῷ Γ τὸ Α, καὶ τῷ Δ τὸ Β. τοῦτο δὲ ψεῦδος· ἀνάπαλιν γὰρ ἦν ἐν τοῖς οὕτως ἔχουσιν ἡ ἀκολούθησις. οὐ γὰρ ἴσως ἀνάγκη παντὶ τὸ Α ἢ τὸ Ζ, οὐδὲ τὸ

A, and A and B cannot both apply to the same subject, it is evident that D will be a consequent of B. (2) Since the relation of C to A is not reversible, and either C or D applies to everything, A and D may apply to the same subject. B and C, however, cannot, because since A is implied by C, this gives us an impossible result. Thus it is evident that the relation of B to D is also irreversible, since it is possible for D and A to apply at the same time.

It happens sometimes in this arrangement of terms also that we are misled because we do not rightly select the opposites one or the other of which must apply to everything, *e.g.*, as follows. 'A and B cannot apply at the same time to the same subject; but where one does not apply, the other must. Again, C and D are similarly related; and wherever C applies, A is implied; then it will follow that where D applies B necessarily applies' (which is false). 'Let F be taken as the negation of A and B, and G as that of C and D. Then either A or F must apply to everything, since either the assertion or the negation must so apply. Again, so must either C or G, since they are assertion and negation. Also A applies *ex hypothesi* where C applies. Hence G applies to everything to which F applies. Again, since one or other of the terms F and B applies to everything, and similarly with G and D, and since G is a consequent of F, B will also be a consequent of D; for we know this.[a] Then if A is a consequent of C, so also is B of D.' But this is false; for we saw that in terms so constituted the reverse consequential relation obtains. The explanation is that it is presumably not necessary that either A or F should apply to everything, nor

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[a] *Cf.* 52 b 4-13.

52 b Z ἢ τὸ B· οὐ γάρ ἐστιν ἀπόφασις τοῦ A τὸ Z. τοῦ γὰρ ἀγαθοῦ τὸ οὐκ ἀγαθὸν ἀπόφασις· οὐ ταὐτὸ δ' ἐστὶ τὸ οὐκ ἀγαθὸν τῷ οὔτ' ἀγαθὸν οὔτ' οὐκ ἀγαθόν. ὁμοίως δὲ καὶ ἐπὶ τῶν ΓΔ· αἱ γὰρ ἀποφάσεις αἱ εἰλημμέναι δύο εἰσίν.

that either F or B should do so ; for F is not the negation of A. The negation of the good is the not-good ; and the not-good is not identical with the neither good nor not-good. The same is true of C and D. In both cases two negations have been assumed for one term.

B

I. Ἐν πόσοις μὲν οὖν σχήμασι καὶ διὰ ποίων καὶ πόσων προτάσεων καὶ πότε καὶ πῶς γίγνεται συλλογισμός, ἔτι δ' εἰς ποῖα βλεπτέον ἀνασκευάζοντι καὶ κατασκευάζοντι, καὶ πῶς δεῖ ζητεῖν περὶ τοῦ προκειμένου καθ' ὁποιανοῦν μέθοδον, ἔτι δὲ διὰ ποίας ὁδοῦ ληψόμεθα τὰς περὶ ἕκαστον ἀρχάς, ἤδη διεληλύθαμεν.

Ἐπεὶ δ' οἱ μὲν καθόλου τῶν συλλογισμῶν εἰσὶν οἱ δὲ κατὰ μέρος, οἱ μὲν καθόλου πάντες ἀεὶ πλείω συλλογίζονται, τῶν δ' ἐν μέρει οἱ μὲν κατηγορικοὶ πλείω, οἱ δ' ἀποφατικοὶ τὸ συμπέρασμα μόνον. αἱ μὲν γὰρ ἄλλαι προτάσεις ἀντιστρέφουσιν, ἡ δὲ στερητικὴ οὐκ ἀντιστρέφει· τὸ δὲ συμπέρασμα τὶ κατὰ τινός ἐστιν· ὥσθ' οἱ μὲν ἄλλοι συλλογισμοὶ πλείω συλλογίζονται, οἷον εἰ τὸ Α δέδεικται παντὶ τῷ Β ἢ τινί, καὶ τὸ Β τινὶ τῷ Α ἀναγκαῖον ὑπάρχειν· καὶ εἰ μηδενὶ τῷ Β τὸ Α, οὐδὲ τὸ Β οὐδενὶ τῷ Α (τοῦτο δ' ἕτερον τοῦ ἔμπροσθεν)· εἰ δὲ τινὶ μὴ ὑπάρχει, οὐκ ἀνάγκη καὶ τὸ Β τινὶ τῷ Α μὴ ὑπάρχειν· ἐνδέχεται γὰρ παντὶ ὑπάρχειν.

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[a] *i.e.* premisses. *Cf.* 43 b 36.

[b] Because the relation of subject and predicate is reversed.

[c] *Cf.* 25 a 24.

BOOK II

Book II.
PROPERTIES OF SYLLOGISM AND KINDRED ARGUMENTS.
Summary of Book I. chs. i.-xxvi., chs. xxvii.-xxxi.

I. We have now explained in how many figures a syllogism is effected; also the nature and number of the premisses by which it is effected, and the circumstances and conditions by which it is governed. Further, we have explained what kind of attributes should be considered when one is refuting and when one is establishing a proposition, and how to set about the appointed task in every given method of approach; and further by what means we are to arrive at the starting-points [a] proper to each case.

Syllogisms which yield more than one conclusion.

Now some syllogisms being universal and some particular, those which are universal always give more than one inference; but whereas those particular syllogisms which are affirmative give more than one inference, those which are negative give only the conclusion. For all other premisses are convertible, but the particular negative premiss is not; and the conclusion consists of an attribute predicated of a subject. Thus all other syllogisms give more than one result: *e.g.*, if A has been proved to apply to all or some of B, B must also apply to some A; and if it has been proved that A applies to no B, then B applies to no A. This is a different conclusion from the former.[b] But if A does not apply to some B, it does not follow that B also does not apply to some A; for it may apply to all.[c]

53 a
15 Αὕτη μὲν οὖν κοινὴ πάντων αἰτία, τῶν τε καθόλου
καὶ τῶν κατὰ μέρος· ἔστι δὲ περὶ τῶν
καθόλου καὶ ἄλλως εἰπεῖν. ὅσα γὰρ ἢ ὑπὸ τὸ μέσον
ἢ ὑπὸ τὸ συμπέρασμά ἐστιν, ἁπάντων ἔσται ὁ αὐτὸς
συλλογισμός, ἐὰν τὰ μὲν ἐν τῷ μέσῳ τὰ δ' ἐν τῷ
20 συμπεράσματι τεθῇ· οἷον εἰ τὸ ΑΒ συμπέρασμα διὰ
τοῦ Γ, ὅσα ὑπὸ τὸ Β ἢ τὸ Γ ἐστίν, ἀνάγκη κατὰ
πάντων λέγεσθαι τὸ Α· εἰ γὰρ τὸ Δ ἐν ὅλῳ τῷ Β
τὸ δὲ Β ἐν τῷ Α, καὶ τὸ Δ ἔσται ἐν τῷ Α. πάλιν
εἰ τὸ Ε ἐν ὅλῳ τῷ Γ τὸ δὲ Γ ἐν τῷ Α, καὶ τὸ Ε
ἐν τῷ Α ἔσται. ὁμοίως δὲ καὶ εἰ στερητικὸς ὁ
25 συλλογισμός. ἐπὶ δὲ τοῦ δευτέρου σχήματος τὸ ὑπὸ
τὸ συμπέρασμα μόνον ἔσται συλλογίσασθαι· οἷον εἰ
τὸ Α τῷ Β μηδενὶ τῷ δὲ Γ παντί, συμπέρασμα ὅτι
οὐδενὶ τῷ Γ τὸ Β. εἰ δὴ τὸ Δ ὑπὸ τὸ Γ ἐστί,
φανερὸν ὅτι οὐχ ὑπάρχει αὐτῷ τὸ Β. τοῖς δ' ὑπὸ
30 τὸ Α ὅτι οὐχ ὑπάρχει οὐ δῆλον διὰ τοῦ συλλογισμοῦ.
καίτοι οὐχ ὑπάρχει τῷ Ε, εἰ ἔστιν ὑπὸ τὸ Α· ἀλλὰ
τὸ μὲν τῷ Γ μηδενὶ ὑπάρχειν τὸ Β διὰ τοῦ συλλογισμοῦ
δέδεικται, τὸ δὲ τῷ Α μὴ ὑπάρχειν
ἀναπόδεικτον εἴληπται, ὥστ' οὐ διὰ τὸν συλλογισμὸν
συμβαίνει τὸ Β τῷ Ε μὴ ὑπάρχειν.

35 Ἐπὶ δὲ τῶν ἐν μέρει τῶν μὲν ὑπὸ τὸ συμπέρασμα
οὐκ ἔσται τὸ ἀναγκαῖον (οὐ γὰρ γίγνεται συλλογισμὸς
ὅταν αὕτη ληφθῇ ἐν μέρει), τῶν δ' ὑπὸ τὸ
μέσον ἔσται πάντων, πλὴν οὐ διὰ τὸν συλλογισμόν,
οἷον εἰ τὸ Α παντὶ τῷ Β τὸ δὲ Β τινὶ τῷ Γ· τοῦ

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[a] *Sc.* as middle term.

[b] Waitz points out *ad loc.* that in Camestres nothing can be inferred about subordinates to the middle term.

This reason, then, is common to all syllogisms, both universal and particular; but with respect to universal syllogisms it is also possible to give a different explanation. The same syllogism will hold good of all terms which are subordinate to the middle term or the conclusion, if these terms are placed respectively in the middle and in the conclusion. *E.g.*, if AB is a conclusion reached by means of C,[a] A must be stated of all terms which are subordinate to B or C. For if D is wholly contained in B, and B in A, D will also be contained in A. Again, if E is wholly contained in C, and C in A, E will also be contained in A. Similarly too if the syllogism is negative. In the second figure, however, the inference will only hold good of that which is subordinate to the conclusion. *E.g.*, if A applies to no B but to all C, the conclusion is that B applies to no C. Then if D is subordinate to C, it is evident that B does not apply to D. That it does not apply to terms subordinate to A is not shown by the syllogism, although B does not apply to E if E is subordinate to A. But whereas it has been proved by the syllogism that B applies to no C, that B does not apply to A has been assumed without proof; so that it does not follow by the syllogism that B does not apply to E.[b]

Another explanation.

As for particular syllogisms, there will be no necessary inference concerning the terms subordinate to the conclusion (since no syllogism results when this premiss[c] is taken as particular), but there will be one which holds good of all terms subordinate to the middle, only it will not be reached by the syllogism: *e.g.*, if we assume that A applies to all B, and B to

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[c] The conclusion of the original syllogism, which now becomes the major.

53 a μὲν γὰρ ὑπὸ τὸ Γ τεθέντος οὐκ ἔσται συλλογισμός, 40 τοῦ δ' ὑπὸ τὸ Β ἔσται, ἀλλ' οὐ διὰ τὸν προγεγενημένον. ὁμοίως δὲ κἀπὶ τῶν ἄλλων σχημάτων· τοῦ 53 b μὲν γὰρ ὑπὸ τὸ συμπέρασμα οὐκ ἔσται, θατέρου δ' ἔσται, πλὴν οὐ διὰ τὸν συλλογισμόν, ᾗ καὶ ἐν τοῖς καθόλου ἐξ ἀναποδείκτου τῆς προτάσεως τὰ ὑπὸ τὸ μέσον ἐδείκνυτο· ὥστ' ἢ οὐδ' ἐκεῖ ἔσται ἢ καὶ ἐπὶ τούτων.

II. Ἔστι μὲν οὖν οὕτως ἔχειν ὥστ' ἀληθεῖς εἶναι 5 τὰς προτάσεις δι' ὧν ὁ συλλογισμός, ἔστι δ' ὥστε ψευδεῖς, ἔστι δ' ὥστε τὴν μὲν ἀληθῆ τὴν δὲ ψευδῆ· τὸ δὲ συμπέρασμα ἢ ἀληθὲς ἢ ψεῦδος ἐξ ἀνάγκης. ἐξ ἀληθῶν μὲν οὖν οὐκ ἔστι ψεῦδος συλλογίσασθαι, ἐκ ψευδῶν δ' ἔστιν ἀληθές, πλὴν οὐ διότι ἀλλ' ὅτι· 10 τοῦ γὰρ διότι οὐκ ἔστιν ἐκ ψευδῶν συλλογισμός· δι' ἣν δ' αἰτίαν ἐν τοῖς ἑπομένοις λεχθήσεται.

Πρῶτον μὲν οὖν ὅτι ἐξ ἀληθῶν οὐχ οἷόν τε ψεῦδος συλλογίσασθαι ἐντεῦθεν δῆλον. εἰ γὰρ τοῦ Α ὄντος ἀνάγκη τὸ Β εἶναι, τοῦ Β μὴ ὄντος ἀνάγκη τὸ Α μὴ εἶναι. εἰ οὖν ἀληθές ἐστι τὸ Α, ἀνάγκη τὸ Β 15 ἀληθὲς εἶναι, ἢ συμβήσεται τὸ αὐτὸ ἅμα εἶναί τε καὶ οὐκ εἶναι· τοῦτο δ' ἀδύνατον. μὴ ὅτι δὲ κεῖται τὸ Α εἷς ὅρος ὑποληφθήτω ἐνδέχεσθαι ἑνός τινος ὄντος ἐξ ἀνάγκης τι συμβαίνειν· οὐ γὰρ οἷόν τε· τὸ μὲν γὰρ συμβαῖνον ἐξ ἀνάγκης τὸ συμπέρασμά

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[a] Except Baroco, Bocardo and Disamis (Waitz on 53 a 34).
[b] 57 a 40–b 17.

some C; for there will be no inference concerning that which is subordinate to C, but there will be one with regard to that which is subordinate to B; not, however, by the syllogism already effected. Similarly too with the other figures.[a] There will be no inference concerning that which is subordinate to the conclusion, but there will be one concerning the other subordinate, only not by the syllogism; just as in the universal syllogisms the terms subordinate to the middle are proved, as we have seen, from a premiss which is undemonstrated. Thus either the principle will not apply in the former case, or it will apply here too.

True and false premisses.

II. It is possible for the premisses by which the syllogism is effected to be both true, or both false, or one true and the other false. The conclusion, however, is true or false of necessity. Now it is impossible to draw a false conclusion from true premisses, but it is possible to draw a true conclusion from false premisses; only the conclusion will be true not as regards the reason but as regards the fact. It is not possible to infer the reason from false premisses; why this is so will be explained later.[b]

True premisses cannot yiel a false conclusion.

Firstly, then, that it is not possible to draw a false conclusion from true premisses will be clear from the following argument. If, when A is, B must be, then if B is not, A cannot be. Therefore if A is true, B must be true: otherwise it will follow that the same thing at once is and is not, which is impossible. (It must not be supposed that, because A has been posited as a single term, it is possible for any necessary inference to be drawn from any one assumption, for this is impossible. The necessary inference is the conclusion, and the fewest means by which this can

53 b ἔστι, δι' ὧν δὲ τοῦτο γίγνεται ἐλαχίστων τρεῖς ὅροι
20 δύο δὲ διαστήματα καὶ προτάσεις. εἰ οὖν ἀληθὲς
ᾧ τὸ Β ὑπάρχει τὸ Α παντὶ ᾧ δὲ τὸ Γ τὸ Β, ᾧ
τὸ Γ ἀνάγκη τὸ Α ὑπάρχειν, καὶ οὐχ οἷόν τε τοῦτο
ψεῦδος εἶναι· ἅμα γὰρ ὑπάρξει ταὐτὸ καὶ οὐχ
ὑπάρξει. τὸ οὖν Α ὥσπερ ἓν κεῖται, δύο προτάσεις
25 συλληφθεῖσαι. ὁμοίως δὲ καὶ ἐπὶ τῶν στερητικῶν
ἔχει· οὐ γὰρ ἔστιν ἐξ ἀληθῶν δεῖξαι ψεῦδος.

Ἐκ ψευδῶν δ' ἀληθὲς ἔστι συλλογίσασθαι καὶ
ἀμφοτέρων τῶν προτάσεων ψευδῶν οὐσῶν καὶ τῆς
μιᾶς, ταύτης δ' οὐχ ὁποτέρας ἔτυχεν ἀλλὰ τῆς
δευτέρας,[1] ἐάνπερ ὅλην λαμβάνῃ ψευδῆ· μὴ ὅλης δὲ
30 λαμβανομένης ἔστιν ὁποτερασοῦν.

Ἔστω γὰρ τὸ Α ὅλῳ τῷ Γ ὑπάρχον τῶν δὲ Β
μηδενί, μηδὲ τὸ Β τῷ Γ· ἐνδέχεται δὲ τοῦτο, οἷον
λίθῳ οὐδενὶ ζῷον, οὐδὲ λίθος οὐδενὶ ἀνθρώπῳ· ἐὰν
οὖν ληφθῇ τὸ Α παντὶ τῷ Β καὶ τὸ Β παντὶ τῷ Γ,
τὸ Α παντὶ τῷ Γ ὑπάρξει, ὥστ' ἐξ ἀμφοῖν ψευδῶν
35 ἀληθὲς τὸ συμπέρασμα (πᾶς γὰρ ἄνθρωπος ζῷον).
ὡσαύτως δὲ καὶ τὸ στερητικόν· ἔστι γὰρ τῷ Γ μήτε
τὸ Α ὑπάρχειν μηδενὶ μήτε τὸ Β, τὸ μέντοι Α
τῷ Β παντί, οἷον ἐὰν τῶν αὐτῶν ὅρων ληφθέντων
μέσον τεθῇ ὁ ἄνθρωπος· λίθῳ γὰρ οὔτε ζῷον οὔτε
ἄνθρωπος οὐδενὶ ὑπάρχει, ἀνθρώπῳ δὲ παντὶ ζῷον.
40 ὥστ' ἐὰν ᾧ μὲν ὑπάρχει λάβῃ μηδενὶ ὑπάρχειν, ᾧ
δὲ μὴ ὑπάρχει παντὶ ὑπάρχειν, ἐκ ψευδῶν ἀμφοῖν
54 a ἀληθὲς ἔσται τὸ συμπέρασμα. ὁμοίως δὲ δειχθήσεται
καὶ ἐὰν ἐπί τι ψευδὴς ἑκατέρα ληφθῇ.

[1] ἀλλὰ τῆς δευτέρας om. Bu, Jenkinson.

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[a] *i.e.* contrary to the true premiss. *Cf.* 54 a 4.

be effected are three terms and two connecting relations or premisses.) If, then, it is true that A applies to everything to which B does, and that B applies where C does, A must apply where C does, and this cannot be false; otherwise the same attribute will at once apply and not apply. Thus although A is posited as a single term, it represents the conjunction of two premisses. Similarly too with negative syllogisms: it is impossible to prove a false conclusion from true premisses.

How true conclusions can be drawn from false premisses.

It is possible to draw a true conclusion from false premisses not only when both premisses are false but also when only one is false,—not either one indifferently, but the second, that is if it is wholly false[a] in the form in which it is assumed; otherwise the falsity may belong to either premiss.

First figure (1) Universal syllogisms. (i.) Both premisses false.

Let A apply to the whole of C, but to no B; and let B apply to no C. This is possible: *e.g.*, 'animal' applies to no 'stone' and 'stone' applies to no 'man.' If, then, it is assumed that A applies to all B and B to all C, A will apply to all C. Thus the conclusion from premisses which are both false is true; for every man is an animal. Similarly too with the negative syllogism. For it is possible for both A and B to apply to no C, and yet for A to apply to all B; *e.g.*, if the same terms as before are taken, with 'man' as the middle term; for neither 'animal' nor 'man' applies to any stone, but 'animal' applies to every man. Thus if it is assumed that that which applies to all applies to none, and that which does not apply applies to all, although both premisses are false, the conclusion drawn from them will be true. A similar proof will also obtain if both premisses assumed are partly false.

54 a Ἐὰν δ' ἡ ἑτέρα τεθῇ ψευδής, τῆς μὲν πρώτης ὅλης ψευδοῦς οὔσης, οἷον τῆς ΑΒ, οὐκ ἔσται τὸ συμπέρασμα ἀληθές, τῆς δὲ ΒΓ ἔσται. λέγω δ' ὅλην ψευδῆ τὴν ἐναντίαν, οἷον εἰ μηδενὶ ὑπάρχον παντὶ εἴληπται ἢ εἰ παντὶ μηδενὶ ὑπάρχειν. ἔστω γὰρ τὸ Α τῷ Β μηδενὶ ὑπάρχον, τὸ δὲ Β τῷ Γ παντί. ἂν δὴ τὴν μὲν ΒΓ πρότασιν λάβω ἀληθῆ τὴν δὲ τὸ ΑΒ ψευδῆ ὅλην, καὶ παντὶ ὑπάρχειν τῷ Β τὸ Α, ἀδύνατον τὸ συμπέρασμα ἀληθὲς εἶναι· οὐδενὶ γὰρ ὑπῆρχε τῶν Γ, εἴπερ ᾧ τὸ Β, μηδενὶ τὸ Α, τὸ δὲ Β παντὶ τῷ Γ. ὁμοίως δ' οὐδ' εἰ τὸ Α τῷ Β παντὶ ὑπάρχει καὶ τὸ Β τῷ Γ παντί, ἐλήφθη δ' ἡ μὲν τὸ ΒΓ ἀληθὴς πρότασις ἡ δὲ τὸ ΑΒ ψευδὴς ὅλη, καὶ μηδενὶ ᾧ τὸ Β τὸ Α, τὸ συμπέρασμα ψεῦδος ἔσται· παντὶ γὰρ ὑπάρξει τῷ Γ τὸ Α, εἴπερ ᾧ τὸ Β, παντὶ τὸ Α, τὸ δὲ Β παντὶ τῷ Γ. φανερὸν οὖν ὅτι τῆς πρώτης ὅλης λαμβανομένης ψευδοῦς, ἐάν τε καταφατικῆς ἐάν τε στερητικῆς, τῆς δ' ἑτέρας ἀληθοῦς, οὐ γίγνεται ἀληθὲς τὸ συμπέρασμα. μὴ ὅλης δὲ λαμβανομένης ψευδοῦς ἔσται. εἰ γὰρ τὸ Α τῷ μὲν Γ παντὶ ὑπάρχει τῷ δὲ Β τινί, τὸ δὲ Β παντὶ τῷ Γ, οἷον ζῷον κύκνῳ μὲν παντὶ λευκῷ δὲ τινί, τὸ δὲ λευκὸν παντὶ κύκνῳ, ἐὰν ληφθῇ τὸ Α παντὶ τῷ Β καὶ τὸ Β παντὶ τῷ Γ, τὸ Α παντὶ τῷ Γ ὑπάρξει ἀληθῶς· πᾶς γὰρ κύκνος ζῷον. ὁμοίως δὲ καὶ εἰ στερητικὸν εἴη τὸ ΑΒ· ἐγχωρεῖ γὰρ τὸ Α τῷ μὲν Β τινὶ ὑπάρχειν τῷ δὲ Γ μηδενί, τὸ δὲ Β παντὶ τῷ Γ, οἷον ζῷον τινὶ λευκῷ χιόνι δ' οὐδεμιᾷ, λευκὸν δὲ πάσῃ χιόνι. εἰ οὖν ληφθείη τὸ μὲν Α μηδενὶ τῷ Β τὸ δὲ Β παντὶ τῷ Γ, τὸ Α οὐδενὶ τῷ Γ ὑπάρξει. ἐὰν δ' ἡ μὲν ΑΒ πρό-

(ii.) One premiss false.

If, however, only one of the premisses posited is false, when the first, *e.g.*, AB, is wholly false, the conclusion will not be true; but when BC is wholly false, the conclusion can be true. I mean by 'wholly false' the contrary statement, *i.e.*, if that which applies to none is assumed to apply to all, or *vice versa.* For let A apply to no B, and B to all C. Then if the premiss BC which I assume is true, and the premiss AB is wholly false, *i.e.*, A applies to all B, the conclusion cannot be true; for *ex hypothesi* A applies to no C, if A applies to nothing to which B applies, and B applies to all C. Similarly too if A applies to all B and B to all C, and the premiss BC which has been assumed is true, but the premiss AB is assumed in a form which is wholly false (viz., that A applies to nothing to which B applies): the conclusion will be false; for A will apply to all C if A applies to everything to which B applies, and B applies to all C. Thus it is evident that when the first premiss assumed, whether affirmative or negative, is wholly false, and the other premiss is true, the conclusion which follows is not true; but it will be true if the premiss assumed is not wholly false. For if A applies to all C and to some B, and B applies to all C, as *e.g.* 'animal' applies to every swan and to some 'white,' and 'white' applies to every swan; and if it is assumed that A applies to all B and B to all C, A will apply to all C, which is true; for every swan is an animal. Similarly too supposing that AB is negative; for it is possible for A to apply to some B but to no C, and for B to apply to all C: as, *e.g.*, 'animal' applies to some 'white' but to no snow, but white applies to all snow. Supposing then that A is assumed to apply to no B, and B to all C, A will apply to no C.

Major wholly false, minor true.

Major partly false, minor true.

54 a τασις ὅλη ληφθῇ ἀληθὴς ἡ δὲ ΒΓ ὅλη ψευδής, ἔσται συλλογισμὸς ἀληθής· οὐδὲν γὰρ κωλύει τὸ Α τῷ Β καὶ τῷ Γ παντὶ ὑπάρχειν, τὸ μέντοι Β μηδενὶ τῷ Γ, οἷον ὅσα τοῦ αὐτοῦ γένους εἴδη μὴ ὑπ' ἄλληλα· τὸ γὰρ ζῷον καὶ ἵππῳ καὶ ἀνθρώπῳ ὑπάρχει, ἵππος δ' οὐδενὶ ἀνθρώπῳ. ἐὰν οὖν ληφθῇ τὸ Α παντὶ τῷ Β καὶ τὸ Β παντὶ τῷ Γ, ἀληθὲς ἔσται τὸ συμπέρασμα ψευδοῦς ὅλης οὔσης τῆς ΒΓ προτάσεως.

Ὁμοίως δὲ καὶ στερητικῆς οὔσης τῆς ΑΒ προτάσεως. ἐνδέχεται γὰρ τὸ Α μήτε τῷ Β μήτε τῷ Γ μηδενὶ ὑπάρχειν, μηδὲ τὸ Β μηδενὶ τῷ Γ, οἷον τοῖς ἐξ ἄλλου γένους εἴδεσι τὸ γένος· τὸ γὰρ ζῷον 54 b οὔτε μουσικῇ οὔτ' ἰατρικῇ ὑπάρχει, οὐδ' ἡ μουσικὴ ἰατρικῇ. ληφθέντος οὖν τοῦ μὲν Α μηδενὶ τῷ Β τοῦ δὲ Β παντὶ τῷ Γ, ἀληθὲς ἔσται τὸ συμπέρασμα.

Καὶ εἰ μὴ ὅλη ψευδὴς ἡ ΒΓ ἀλλ' ἐπί τι, καὶ οὕτως ἔσται τὸ συμπέρασμα ἀληθές. οὐδὲν γὰρ κωλύει τὸ Α καὶ τῷ Β καὶ τῷ Γ ὅλῳ ὑπάρχειν, τὸ μέντοι Β τινὶ τῷ Γ, οἷον τὸ γένος τῷ εἴδει καὶ τῇ διαφορᾷ· τὸ γὰρ ζῷον παντὶ ἀνθρώπῳ καὶ παντὶ πεζῷ, ὁ δ' ἄνθρωπος τινὶ πεζῷ καὶ οὐ παντί. εἰ οὖν τὸ Α παντὶ τῷ Β καὶ τὸ Β παντὶ τῷ Γ ληφθείη, τὸ Α παντὶ τῷ Γ ὑπάρξει· ὅπερ ἦν ἀληθές.

Ὁμοίως δὲ καὶ στερητικῆς οὔσης τῆς ΑΒ προτάσεως. ἐνδέχεται γὰρ τὸ Α μήτε τῷ Β μήτε τῷ Γ μηδενὶ ὑπάρχειν, τὸ μέντοι Β τινὶ τῷ Γ, οἷον τὸ γένος τῷ ἐξ ἄλλου γένους εἴδει καὶ διαφορᾷ· τὸ γὰρ ζῷον οὔτε φρονήσει οὐδεμιᾷ ὑπάρχει οὔτε

Major true, minor wholly false.

But if the premiss AB which is assumed is wholly true, and BC is wholly false, we shall have a true conclusion. For there is no reason why A should not apply to all B and all C, while B applies to no C ; as is the case with all species of a genus which are not subordinate one to another ; for ' animal ' applies to both horse and man, but ' horse ' applies to no man. Thus if A is assumed to apply to all B, and B to all C, the conclusion will be true, although the premiss BC is wholly false.

Similarly too when the premiss AB is negative. For it is possible that A should apply to no B and to genus does not apply to the species of another genus. no C, and that B should apply to no C ; as, *e.g.*, a For ' animal ' applies neither to music nor to medicine, nor does music apply to medicine. If, then, it is assumed that A applies to no B but B applies to all C, the conclusion will be true.

Major true, minor partly false.

Also if the premiss BC is not wholly but only partly false, the conclusion will again be true. For there is no reason why A should not apply to the whole of both B and C, while B applies to some C ; as, *e.g.*, the genus applies both to the species and to the differentia ; for ' animal ' applies to every man and to everything that walks on land, while ' man ' applies to some things which walk on land, but not to all. Supposing, then, that A is assumed to apply to all B, and B to all C, A will apply to all C ; which, as we have seen, is true.

Similarly too if the premiss AB is negative. For it is possible for A to apply to no B and to no C, and yet for B to apply to some C ; as, *e.g.*, the genus does not apply to the species and differentia of another genus ; for ' animal ' applies neither to ' thought '

54 b θεωρητικῇ, ἡ δὲ φρόνησις τινὶ θεωρητικῇ. εἰ οὖν ληφθείη τὸ μὲν Α μηδενὶ τῷ Β τὸ δὲ Β παντὶ τῷ Γ, οὐδενὶ τῷ Γ τὸ Α ὑπάρξει· τοῦτο δ' ἦν ἀληθές.

Ἐπὶ δὲ τῶν ἐν μέρει συλλογισμῶν ἐνδέχεται καὶ τῆς πρώτης προτάσεως ὅλης οὔσης ψευδοῦς τῆς δ' ἑτέρας ἀληθοῦς ἀληθὲς εἶναι τὸ συμπέρασμα, καὶ ἐπί τι ψευδοῦς οὔσης τῆς πρώτης τῆς δ' ἑτέρας ἀληθοῦς,[1] καὶ τῆς μὲν ἀληθοῦς τῆς δ' ἐν μέρει ψευδοῦς, καὶ ἀμφοτέρων ψευδῶν. οὐδὲν γὰρ κωλύει τὸ Α τῷ μὲν Β μηδενὶ ὑπάρχειν τῷ δὲ Γ τινί, καὶ τὸ Β τῷ Γ τινί, οἷον ζῷον οὐδεμιᾷ χιόνι λευκῷ δὲ τινὶ ὑπάρχει, καὶ ἡ χιὼν λευκῷ τινί. εἰ οὖν[2] μέσον τεθείη ἡ χιὼν πρῶτον δὲ τὸ ζῷον, καὶ ληφθείη τὸ μὲν Α ὅλῳ τῷ Β ὑπάρχειν τὸ δὲ Β τινὶ τῷ Γ, ἡ μὲν ΑΒ ὅλη ψευδής, ἡ δὲ ΒΓ ἀληθής, καὶ τὸ συμπέρασμα ἀληθές. ὁμοίως δὲ καὶ στερητικῆς οὔσης τῆς ΑΒ προτάσεως· ἐγχωρεῖ γὰρ τὸ Α τῷ μὲν Β ὅλῳ ὑπάρχειν τῷ δὲ Γ τινὶ μὴ ὑπάρχειν, τὸ μέντοι Β τινὶ τῷ Γ ὑπάρχειν, οἷον τὸ ζῷον ἀνθρώπῳ μὲν παντὶ ὑπάρχει λευκῷ δὲ τινὶ οὐχ ἕπεται, ὁ δ' ἄνθρωπος τινὶ λευκῷ ὑπάρχει· ὥστ' εἰ μέσου τεθέντος τοῦ ἀνθρώπου ληφθείη τὸ Α μηδενὶ τῷ Β ὑπάρχειν τὸ δὲ Β τινὶ τῷ Γ ὑπάρχειν, ἀληθὲς ἔσται τὸ συμπέρασμα ψευδοῦς οὔσης ὅλης τῆς ΑΒ προτάσεως.

Καὶ εἰ ἐπί τι ψευδὴς ἡ ΑΒ πρότασις, ἔσται τὸ συμπέρασμα ἀληθές· οὐδὲν γὰρ κωλύει τὸ Α καὶ τῷ Β καὶ τῷ Γ τινὶ ὑπάρχειν, καὶ τὸ Β τῷ Γ τινὶ ὑπάρχειν, οἷον τὸ ζῷον τινὶ καλῷ καὶ τινὶ μεγάλῳ, καὶ τὸ καλὸν τινὶ μεγάλῳ ὑπάρχειν. ἐὰν οὖν ληφθῇ

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[1] ἀληθοῦς] ὅλης ἀληθοῦς nf, Bekker.
[2] οὖν] οὐ errore preli Bekker.

nor to 'speculative,' whereas 'thought' applies to some of that which is speculative. Supposing, then, that A is assumed to apply to no B, and B to all C, A will apply to no C; and this, as we have seen, is true.

(2) Particular syllogisms.

In the case of particular syllogisms it is possible for the conclusion to be true both (i.) when the first premiss is wholly false and the other is true; and (ii.) when the first premiss is partly false and the other is true; and (iii.) when the former is true and the latter partly false; and (iv.) when both are false.

Major wholly false, minor true.

For (i.) there is no reason why A should not apply to no B but to some C, while B applies to some C, as, *e.g.*, 'animal' applies to no snow but to some 'white,' and 'snow' applies to some 'white.' Supposing, then, that 'snow' is posited as the middle term, and 'animal' as the first, and it is assumed that A applies to the whole of B and B to some C, AB is wholly false, but BC is true, and the conclusion is true. Similarly too when the premiss AB is negative. For it is possible for A to apply to the whole of B and not to apply to some C, and yet for B to apply to some C, as, *e.g.*, 'animal' applies to every man, but is not a consequent of some 'white,' and 'man' applies to some 'white'; so that if 'man' is posited as the middle term, and it is assumed that A applies to no B and B applies to some C, the conclusion will be true although the premiss AB is wholly false.

Major partly false, minor true.

(ii.) Also, if the premiss AB is partly false, the conclusion can be true. For there is no reason why A should not apply both to some B and to some C, while B applies to some C; as, *e.g.*, 'animal' applies to some 'beautiful' and some 'large,' and 'beautiful' applies to some 'large.' Thus if A is assumed

55 a τὸ Α παντὶ τῷ Β καὶ τὸ Β τινὶ τῷ Γ, ἡ μὲν ΑΒ πρότασις ἐπί τι ψευδὴς ἔσται, ἡ δὲ ΒΓ ἀληθής, καὶ τὸ συμπέρασμα ἀληθές. ὁμοίως δὲ καὶ στερητικῆς οὔσης τῆς ΑΒ προτάσεως· οἱ γὰρ αὐτοὶ ὅροι ἔσονται καὶ ὡσαύτως κείμενοι πρὸς τὴν ἀπόδειξιν.

Πάλιν εἰ ἡ μὲν ΑΒ ἀληθὴς ἡ δὲ ΒΓ ψευδής, ἀληθὲς ἔσται τὸ συμπέρασμα. οὐδὲν γὰρ κωλύει τὸ Α τῷ μὲν Β ὅλῳ ὑπάρχειν τῷ δὲ Γ τινί, καὶ τὸ Β τῷ Γ μηδενὶ ὑπάρχειν, οἷον ζῷον κύκνῳ μὲν παντὶ μέλανι δὲ τινί, κύκνος δὲ οὐδενὶ μέλανι· ὥστ᾿ εἰ ληφθείη παντὶ τῷ Β τὸ Α καὶ τὸ Β τινὶ τῷ Γ, ἀληθὲς ἔσται τὸ συμπέρασμα ψευδοῦς ὄντος τοῦ ΒΓ.

Ὁμοίως δὲ καὶ στερητικῆς λαμβανομένης τῆς ΑΒ προτάσεως. ἐγχωρεῖ γὰρ τὸ Α τῷ μὲν Β μηδενὶ τῷ δὲ Γ τινὶ μὴ ὑπάρχειν, τὸ μέντοι Β μηδενὶ τῷ Γ, οἷον τὸ γένος τῷ ἐξ ἄλλου γένους εἴδει καὶ τῷ συμβεβηκότι τοῖς αὐτοῦ εἴδεσι· τὸ γὰρ ζῷον ἀριθμῷ μὲν οὐδενὶ ὑπάρχει λευκῷ δὲ τινὶ οὔ,[1] ὁ δ᾿ ἀριθμὸς οὐδενὶ λευκῷ· ἐὰν οὖν μέσον τεθῇ ὁ ἀριθμός, καὶ ληφθῇ τὸ μὲν Α μηδενὶ τῷ Β τὸ δὲ Β τινὶ τῷ Γ, τὸ Α τινὶ τῷ Γ οὐχ ὑπάρξει, ὅπερ ἦν ἀληθές· καὶ ἡ μὲν ΑΒ πρότασις ἀληθής, ἡ δὲ ΒΓ ψευδής.

Καὶ εἰ ἐπί τι ψευδὴς ἡ ΑΒ ψευδὴς δὲ καὶ ἡ ΒΓ ἔσται τὸ συμπέρασμα ἀληθές. οὐδὲν γὰρ κωλύει τὸ Α τῷ Β τινὶ καὶ τῷ Γ τινὶ ὑπάρχειν ἑκατέρῳ, τὸ δὲ Β μηδενὶ τῷ Γ, οἷον εἰ ἐναντίον τὸ Β τῷ Γ, ἄμφω δὲ συμβεβηκότα τῷ αὐτῷ γένει· τὸ γὰρ ζῷον τινὶ λευκῷ καὶ τινὶ μέλανι ὑπάρχει, λευκὸν δ᾿ οὐδενὶ μέλανι. ἐὰν οὖν ληφθῇ τὸ Α παντὶ τῷ Β καὶ τὸ Β τινὶ τῷ Γ, ἀληθὲς ἔσται τὸ συμπέρασμα. καὶ στερητικῆς δὲ λαμβανομένης τῆς ΑΒ ὡσαύτως· οἱ

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[1] τινὶ οὔ Philoponus (?), Jenkinson: τινί codd.

to apply to all B and B to some C, the premiss AB will be partly false, but BC will be true, and the conclusion will be true. Similarly too if the premiss AB is negative; the terms will be the same and will be related in the same way for the purpose of the proof.

Major true, minor false. (iii.) Again, if AB is true and BC false, the conclusion can be true. For there is no reason why A should not apply to the whole of B and to some C, while B applies to no C; as, *e.g.*, 'animal' applies to every swan and to some 'black,' and 'swan' applies to no 'black'; so that supposing that A is assumed to apply to all B and B to some C, the conclusion will be true although BC is false.

Similarly too if the premiss AB is negative. For it is possible for A to apply to no B and not to apply to some C, while B applies to no C; as, *e.g.*, a genus does not apply to a species from another genus, and does not apply to some of an accident to its own species; for 'animal' applies to no 'number' and does not apply to some 'white,' and 'number' applies to no 'white.' Thus if 'number' is taken as the middle term, and A is assumed to apply to no B, and B to some C, A will not apply to some C; which, as we have seen, is true. The premiss AB is true, and BC is false.

Both premisses false. (iv.) The conclusion can also be true if AB is partly false and BC is also false. For there is no reason why A should not apply to some of both B and C, while B applies to no C; *e.g.*, if B is contrary to C, and both are accidents of the same genus; for 'animal' applies to some 'white' and some 'black,' but 'white' applies to no 'black.' Thus if A is assumed to apply to all B, and B to some C, the conclusion will be true. So too if the premiss AB is

55 a γὰρ αὐτοὶ ὅροι καὶ ὡσαύτως τεθήσονται πρὸς τὴν
ἀπόδειξιν.

Καὶ ἀμφοτέρων δὲ ψευδῶν οὐσῶν ἔσται τὸ
30 συμπέρασμα ἀληθές· ἐγχωρεῖ γὰρ τὸ Α τῷ μὲν Β
μηδενὶ τῷ δὲ Γ τινὶ ὑπάρχειν, τὸ μέντοι Β μηδενὶ
τῷ Γ, οἷον τὸ γένος τῷ ἐξ ἄλλου γένους εἴδει καὶ
τῷ συμβεβηκότι τοῖς εἴδεσι τοῖς αὑτοῦ· ζῷον γὰρ
ἀριθμῷ μὲν οὐδενὶ λευκῷ δὲ τινὶ ὑπάρχει, καὶ ὁ
ἀριθμὸς οὐδενὶ λευκῷ. ἐὰν οὖν ληφθῇ τὸ Α παντὶ
35 τῷ Β καὶ τὸ Β τινὶ τῷ Γ, τὸ μὲν συμπέρασμα
ἀληθές, αἱ δὲ προτάσεις ἄμφω ψευδεῖς.

Ὁμοίως δὲ καὶ στερητικῆς οὔσης τῆς ΑΒ. οὐδὲν
γὰρ κωλύει τὸ Α τῷ μὲν Β ὅλῳ ὑπάρχειν τῷ δὲ Γ
τινὶ μὴ ὑπάρχειν, μηδὲ τὸ Β μηδενὶ τῷ Γ, οἷον
ζῷον κύκνῳ μὲν παντὶ μέλανι δὲ τινὶ οὐχ ὑπάρχει,
40 κύκνος δ' οὐδενὶ μέλανι· ὥστ' εἰ ληφθείη τὸ Α
55 b μηδενὶ τῷ Β τὸ δὲ Β τινὶ τῷ Γ, τὸ Α τινὶ τῷ Γ οὐχ
ὑπάρχει. τὸ μὲν οὖν συμπέρασμα ἀληθές, αἱ δὲ
προτάσεις ψευδεῖς.

III. Ἐν δὲ τῷ μέσῳ σχήματι πάντως ἐγχωρεῖ
διὰ ψευδῶν ἀληθὲς συλλογίσασθαι, καὶ ἀμφοτέρων
5 τῶν προτάσεων ὅλων ψευδῶν λαμβανομένων [καὶ
ἐπί τι ἑκατέρας],[1] καὶ τῆς μὲν ἀληθοῦς τῆς δὲ
ψευδοῦς οὔσης ὅλης, ὁποτερασοῦν ψευδοῦς τιθεμένης,
καὶ εἰ ἀμφότεραι ἐπί τι ψευδεῖς, καὶ εἰ ἡ
μὲν ἁπλῶς ἀληθὴς ἡ δ' ἐπί τι ψευδής, καὶ εἰ ἡ μὲν
ὅλη ψευδὴς ἡ δ' ἐπί τι ἀληθής, καὶ ἐν τοῖς καθόλου
10 καὶ ἐπὶ τῶν ἐν μέρει συλλογισμῶν.

Εἰ γὰρ τὸ Α τῷ μὲν Β μηδενὶ ὑπάρχει τῷ δὲ Γ

[1] καὶ . . . ἑκατέρας omittenda ci. Jenkinson.

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[a] These words, if not inserted by error in anticipation of

taken as negative ; the terms will be the same and will be posited in the same relation for the purpose of the proof.

The conclusion can also be true when both premisses are false. For it is possible for A to apply to no B but to some C, while B applies to no C ; as, *e.g.*, a genus does not apply to a species from another genus, but applies to an accident of its own species ; for 'animal' applies to no 'number' but to some 'white,' and 'number' applies to no 'white.' Thus if A is assumed to apply to all B and B to some C, the conclusion will be true although both premisses are false.

Similarly too if AB is negative ; for there is no reason why A should not apply to the whole of B and yet not apply to some C, while B applies to no C ; as, *e.g.*, 'animal' applies to every swan but does not apply to some 'black,' while 'swan' applies to no 'black' ; so that supposing A to be assumed to apply to no B, and B to apply to some C, A does not apply to some C. Thus the conclusion is true although the premisses are false.

Second figure. (1) Universal syllogisms.

III. In the middle figure it is possible to reach a true conclusion by false premisses in every combination : (i.) if both premisses are wholly false ; [if each is partly false ;][a] (ii.) if one is true and the other wholly false, whichever is falsely assumed ; (iii.) if both are partly false ; (iv.) if one is absolutely true and the other partly false ; and if one is wholly false and the other partly true [b]—both in universal and in particular syllogisms.

Both premisses.

(i.) If A applies to no B but to all C, as, *e.g.*, 'animal'

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the wording in ch. iv, are at least tautologous with (iii.), and spoil the analysis.

[b] This case is not treated in the discussion which follows.

55 b
παντί, οἷον ζῷον λίθῳ μὲν οὐδενὶ ἵππῳ δὲ παντί,
ἐὰν ἐναντίως τεθῶσιν αἱ προτάσεις καὶ ληφθῇ τὸ
Α τῷ μὲν Β παντὶ τῷ δὲ Γ μηδενί, ἐκ ψευδῶν ὅλων
τῶν προτάσεων ἀληθὲς ἔσται τὸ συμπέρασμα.
15 ὁμοίως δὲ καὶ εἰ τῷ μὲν Β παντὶ τῷ δὲ Γ μηδενὶ
ὑπάρχει τὸ Α· ὁ γὰρ αὐτὸς ἔσται συλλογισμός.

Πάλιν εἰ ἡ μὲν ἑτέρα ὅλη ψευδὴς ἡ δ' ἑτέρα ὅλη
ἀληθής· οὐδὲν γὰρ κωλύει τὸ Α καὶ τῷ Β καὶ τῷ Γ
παντὶ ὑπάρχειν, τὸ μέντοι Β μηδενὶ τῷ Γ, οἷον τὸ
γένος τοῖς μὴ ὑπ' ἄλληλα εἴδεσιν· τὸ γὰρ ζῷον καὶ
20 ἵππῳ παντὶ καὶ ἀνθρώπῳ, καὶ οὐδεὶς ἄνθρωπος
ἵππος. ἐὰν οὖν ληφθῇ τὸ ζῷον τῷ μὲν παντὶ τῷ δὲ
μηδενὶ ὑπάρχειν, ἡ μὲν ὅλη ψευδὴς ἔσται ἡ δ' ὅλη
ἀληθής, καὶ τὸ συμπέρασμα ἀληθὲς πρὸς ὁποτερῳοῦν
τεθέντος τοῦ στερητικοῦ.

Καὶ εἰ ἡ ἑτέρα ἐπί τι ψευδὴς ἡ δ' ἑτέρα ὅλη
25 ἀληθής. ἐγχωρεῖ γὰρ τὸ Α τῷ μὲν Β τινὶ ὑπάρχειν
τῷ δὲ Γ παντί, τὸ μέντοι Β μηδενὶ τῷ Γ, οἷον ζῷον
λευκῷ μὲν τινὶ κόρακι δὲ παντί, καὶ τὸ λευκὸν
οὐδενὶ κόρακι. ἐὰν οὖν ληφθῇ τὸ Α τῷ μὲν Β
μηδενὶ τῷ δὲ Γ ὅλῳ ὑπάρχειν, ἡ μὲν ΑΒ πρότασις
ἐπί τι ψευδὴς ἡ δ' ΑΓ ὅλη ἀληθής, καὶ τὸ συμπέρασμα
30 ἀληθές. καὶ μετατιθεμένου δὲ τοῦ στερητικοῦ
ὡσαύτως· διὰ γὰρ τῶν αὐτῶν ὅρων ἡ ἀπόδειξις.
καὶ εἰ ἡ καταφατικὴ πρότασις ἐπί τι
ψευδὴς ἡ δὲ στερητικὴ ὅλη ἀληθής. οὐδὲν γὰρ
κωλύει τὸ Α τῷ μὲν Β τινὶ ὑπάρχειν τῷ δὲ Γ ὅλῳ
μὴ ὑπάρχειν, καὶ τὸ Β μηδενὶ τῷ Γ, οἷον τὸ ζῷον
35 λευκῷ μὲν τινὶ πίττῃ δ' οὐδεμιᾷ, καὶ τὸ λευκὸν
οὐδεμιᾷ πίττῃ· ὥστ' ἐὰν ληφθῇ τὸ Α ὅλῳ τῷ Β

applies to no 'stone' but to all 'horse,' if the premisses are taken in the contrary sense and A is assumed to apply to all B but to no C, although the premisses are wholly false, the conclusion from them can be true. Similarly too if A applies to all B but to no C; for we shall get the same syllogism.

wholly false.

(ii.) So again if one premiss is wholly false and the other wholly true; for there is no reason why A should not apply to all of both B and C, while B applies to no C; as, *e.g.*, a genus applies to co-ordinate species; for 'animal' applies both to every horse and to every man, and no man is a horse. Thus if 'animal' is assumed to apply to all of the one and to none of the other, one premiss will be wholly true and the other wholly false, and the conclusion will be true, to whichever of the two terms the negative is attached.

One wholly false and one true premiss.

(iv.) So too if one premiss is partly false and the other wholly true. For it is possible for A to apply to some B and to all C, while B applies to no C; as, *e.g.*, 'animal' applies to some 'white' and to every crow, and 'white' applies to no crow. Thus if A is assumed to apply to no B but to the whole of C, the premiss AB will be partly false, and AC will be wholly true, and the conclusion will be true. Similarly too if the negative is transposed[a]; for the proof will be effected through the same terms. So too if the affirmative premiss is partly false and the negative wholly true. For there is no reason why A should not apply to some B and yet not apply at all to C, while B applies to no C; as, *e.g.*, 'animal' applies to some 'white' but to no pitch, and 'white' applies to no pitch; so that if A is assumed to apply to the

One partly false and one true premiss.

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[a] *i.e.*, if the minor premiss is negative.

55 b ὑπάρχειν τῷ δὲ Γ μηδενί, ἡ μὲν ΑΒ ἐπί τι ψευδής,
ἡ δ' ΑΓ ὅλη ἀληθής, καὶ τὸ συμπέρασμα ἀληθές.

Καὶ εἰ ἀμφότεραι αἱ προτάσεις ἐπί τι ψευδεῖς,
ἔσται τὸ συμπέρασμα ἀληθές. ἐγχωρεῖ γὰρ τὸ Α
40 καὶ τῷ Β καὶ τῷ Γ τινὶ ὑπάρχειν, τὸ δὲ Β μηδενὶ
56 a τῷ Γ, οἷον ζῷον καὶ λευκῷ τινὶ καὶ μέλανι τινί, τὸ
δὲ λευκὸν οὐδενὶ μέλανι. ἐὰν οὖν ληφθῇ τὸ Α τῷ
μὲν Β παντὶ τῷ δὲ Γ μηδενί, ἄμφω μὲν αἱ προτάσεις
ἐπί τι ψευδεῖς, τὸ δὲ συμπέρασμα ἀληθές.
ὁμοίως δὲ καὶ μετατεθείσης τῆς στερητικῆς διὰ τῶν
αὐτῶν ὅρων.

5 Φανερὸν δὲ καὶ ἐπὶ τῶν ἐν μέρει συλλογισμῶν·
οὐδὲν γὰρ κωλύει τὸ Α τῷ μὲν Β παντὶ τῷ δὲ Γ
τινὶ ὑπάρχειν, καὶ τὸ Β τῷ Γ τινὶ μὴ ὑπάρχειν, οἷον
ζῷον παντὶ ἀνθρώπῳ λευκῷ δὲ τινί, ἄνθρωπος δὲ
τινὶ λευκῷ οὐχ ὑπάρξει. ἐὰν οὖν τεθῇ τὸ Α τῷ μὲν
10 Β μηδενὶ ὑπάρχειν τῷ δὲ Γ τινὶ ὑπάρχειν, ἡ μὲν
καθόλου πρότασις ὅλη ψευδής, ἡ δ' ἐν μέρει ἀληθής,
καὶ τὸ συμπέρασμα ἀληθές.

Ὡσαύτως δὲ καὶ καταφατικῆς λαμβανομένης τῆς
ΑΒ· ἐγχωρεῖ γὰρ τὸ Α τῷ μὲν Β μηδενὶ τῷ δὲ Γ
τινὶ μὴ ὑπάρχειν, καὶ τὸ Β τῷ Γ τινὶ μὴ ὑπάρχειν,
15 οἷον τὸ ζῷον οὐδενὶ ἀψύχῳ, λευκῷ δὲ τινὶ οὐχ
ὑπάρχει,[1] καὶ τὸ ἄψυχον οὐχ ὑπάρξει τινὶ λευκῷ.
ἐὰν οὖν τεθῇ τὸ Α τῷ μὲν Β παντὶ τῷ δὲ Γ τινὶ μὴ
ὑπάρχειν, ἡ μὲν ΑΒ πρότασις ἡ καθόλου ὅλη
ψευδής, ἡ δὲ ΑΓ ἀληθής, καὶ τὸ συμπέρασμα
ἀληθές.

Καὶ τῆς μὲν καθόλου ἀληθοῦς τεθείσης τῆς δ' ἐν
20 μέρει ψευδοῦς. οὐδὲν γὰρ κωλύει τὸ Α μήτε τῷ Β

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[1] οὐχ ὑπάρχει m, Bekker: οὔ C^2, Jenkinson: om. ABC^1

whole of B but to no C, AB will be partly false and AC wholly true, and the conclusion will be true.

Both premisses partly false

(iii.) The conclusion can also be true if both premisses are partly false. For it is possible for A to apply to some of both B and C, while B applies to no C; as, *e.g.*, 'animal' applies to some 'white' and some 'black,' but 'white' applies to no 'black.' Thus if A is assumed to apply to all B but to no C, both premisses are partly false, but the conclusion is true. Similarly too if the negative premiss is transposed,[a] the proof being effected through the same terms.

(2) Particular syllogisms. (i.) Major wholly false, minor true.

It is evident that the same also holds good of particular syllogisms. For there is no reason why A should not apply to all B and some C, while B does not apply to some C; as, *e.g.*, 'animal' applies to every man and to some 'white,' but 'man' will not apply to some 'white.' Thus if A is taken to apply to no B but to some C, the universal premiss is wholly false, but the particular premiss is true, and so is the conclusion.

Similarly too if the premiss AB is taken as affirmative; for it is possible for A to apply to no B, and not to apply to some C, and for B not to apply to some C; as, *e.g.*, 'animal' applies to nothing inanimate and does not apply to some 'white,' and 'inanimate' will not apply to some 'white.' Thus if A is taken to apply to all B and not to apply to some C, the universal premiss AB will be wholly false, but AC will be true, and the conclusion will be true too.

(ii.) Major true, minor false.

So too if the universal premiss is true and the particular premiss false. For there is no reason why

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[a] *Cf.* previous note.

56 a μήτε τῷ Γ οὐδενὶ ἕπεσθαι, τὸ μέντοι Β τινὶ τῷ Γ
μὴ ὑπάρχειν, οἷον ζῷον οὐδενὶ ἀριθμῷ οὐδ' ἀψύχῳ,
καὶ ὁ ἀριθμὸς τινὶ ἀψύχῳ οὐχ ἕπεται. ἐὰν οὖν τεθῇ
τὸ Α τῷ μὲν Β μηδενὶ τῷ δὲ Γ τινί, τὸ μὲν συμπέ-
ρασμα ἔσται ἀληθές, καὶ ἡ καθόλου πρότασις ἀληθὴς
25 ἡ δ' ἐν μέρει ψευδής.

Καὶ καταφατικῆς δὲ τῆς καθόλου τιθεμένης
ὡσαύτως. ἐγχωρεῖ γὰρ τὸ Α καὶ τῷ Β καὶ τῷ Γ
ὅλῳ ὑπάρχειν, τὸ μέντοι Β τινὶ τῷ Γ μὴ ἕπεσθαι,
οἷον τὸ γένος τῷ εἴδει καὶ τῇ διαφορᾷ· τὸ γὰρ ζῷον
παντὶ ἀνθρώπῳ καὶ ὅλῳ πεζῷ ἕπεται, ἄνθρωπος δ'
30 οὐ παντὶ πεζῷ· ὥστ' ἂν ληφθῇ τὸ Α τῷ μὲν Β ὅλῳ
ὑπάρχειν τῷ δὲ Γ τινὶ μὴ ὑπάρχειν, ἡ μὲν καθόλου
πρότασις ἀληθὴς ἡ δ' ἐν μέρει ψευδής, τὸ δὲ
συμπέρασμα ἀληθές.

Φανερὸν δὲ καὶ ὅτι ἐξ ἀμφοτέρων ψευδῶν ἔσται
τὸ συμπέρασμα ἀληθές, εἴπερ ἐνδέχεται τὸ Α καὶ
τῷ Β καὶ τῷ Γ ὅλῳ[1] ὑπάρχειν, τὸ μέντοι Β τινὶ τῷ
35 Γ μὴ ἕπεσθαι. ληφθέντος γὰρ τοῦ Α τῷ μὲν Β
μηδενὶ τῷ δὲ Γ τινὶ ὑπάρχειν, αἱ μὲν προτάσεις
ἀμφότεραι ψευδεῖς, τὸ δὲ συμπέρασμα ἀληθές.

Ὁμοίως δὲ καὶ κατηγορικῆς οὔσης τῆς καθόλου
προτάσεως τῆς δ' ἐν μέρει στερητικῆς. ἐγχωρεῖ
γὰρ τὸ Α τῷ μὲν Β μηδενὶ τῷ δὲ Γ παντὶ ἕπεσθαι,
40 καὶ τὸ Β τινὶ τῷ Γ μὴ ὑπάρχειν, οἷον ζῷον ἐπι-
στήμῃ μὲν οὐδεμιᾷ ἀνθρώπῳ δὲ παντὶ ἕπεται, ἡ δ'
56 b ἐπιστήμη οὐ παντὶ ἀνθρώπῳ. ἐὰν οὖν ληφθῇ τὸ
Α τῷ μὲν Β ὅλῳ ὑπάρχειν τῷ δὲ Γ τινὶ μὴ ἕπεσθαι,
αἱ μὲν προτάσεις ψευδεῖς, τὸ δὲ συμπέρασμα
ἀληθές.

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[1] ὅλῳ] τῷ μὲν ὅλῳ τῷ δὲ μηδενὶ fort. Boethius, cj. Jenkinson.

A should not be a consequent of none of either B or C, while B does not apply to some C; as, *e.g.*, 'animal' applies to no number or inanimate thing, and number is not a consequent of some inanimate things. Thus if A is taken to apply to no B but to some C, the conclusion and the universal premiss will be true, although the particular premiss will be false.

Similarly too if the universal premiss is taken as affirmative. For it is possible for A to apply to the whole of both B and C, and yet for B not to be a consequent of some C: as, *e.g.*, the genus applies to the species and the differentia; for 'animal' applies to every man and to all 'that which walks on land,' but 'man' does not apply to everything that walks on land; so that if A is assumed to apply to the whole of B but not to apply to some C, the universal premiss will be true and the particular false, but the conclusion will be true.

(iii.) Both premisses false.

It is evident also that the conclusion drawn from premisses which are both false can be true, since it is possible for A to apply to the whole of both B and C, and yet for B not to be a consequent of some C. For if A is assumed to apply to no B but to some C, both premisses will be false, but the conclusion will be true.

Similarly too if the universal premiss is affirmative and the particular negative. For it is possible for A to be a consequent of no B but of all C, and for B not to apply to some C: as, *e.g.*, 'animal' is a consequent of no 'knowledge' but of all 'man,' and 'knowledge' is not a consequent of all 'man.' Thus if A is assumed to apply to the whole of B, but not to be a consequent of some C, the premisses will be false, but the conclusion will be true.

66 b
IV. Ἔσται δὲ καὶ ἐν τῷ ἐσχάτῳ σχήματι διὰ
5 ψευδῶν ἀληθές, καὶ ἀμφοτέρων ψευδῶν οὐσῶν
ὅλων καὶ ἐπί τι ἑκατέρας, καὶ τῆς μὲν ἑτέρας
ἀληθοῦς ὅλης τῆς δ᾽ ἑτέρας ψευδοῦς, καὶ τῆς μὲν
ἐπί τι ψευδοῦς τῆς δ᾽ ὅλης ἀληθοῦς, καὶ ἀνάπαλιν,
καὶ ὁσαχῶς ἄλλως ἐγχωρεῖ μεταλαβεῖν τὰς προτά-
σεις. οὐδὲν γὰρ κωλύει μήτε τὸ Α μήτε τὸ Β
10 μηδενὶ τῷ Γ ὑπάρχειν, τὸ μέντοι Α τινὶ τῷ Β
ὑπάρχειν, οἷον οὔτ᾽ ἄνθρωπος οὔτε πεζὸν οὐδενὶ
ἀψύχῳ ἕπεται, ἄνθρωπος μέντοι τινὶ πεζῷ ὑπάρχει.
ἐὰν οὖν ληφθῇ τὸ Α καὶ τὸ Β παντὶ τῷ Γ ὑπάρχειν,
αἱ μὲν προτάσεις ὅλαι ψευδεῖς, τὸ δὲ συμπέρασμα
ἀληθές. ὡσαύτως δὲ καὶ τῆς μὲν στερητικῆς τῆς
15 δὲ καταφατικῆς οὔσης. ἐγχωρεῖ γὰρ τὸ μὲν Β
μηδενὶ τῷ Γ ὑπάρχειν τὸ δὲ Α παντί, καὶ τὸ Α τινὶ
τῷ Β μὴ ὑπάρχειν, οἷον τὸ μέλαν οὐδενὶ κύκνῳ
ζῷον δὲ παντί, καὶ τὸ ζῷον οὐ παντὶ μέλανι· ὥστ᾽
ἂν ληφθῇ τὸ μὲν Β παντὶ τῷ Γ τὸ δὲ Α μηδενί, τὸ
20 Α τινὶ τῷ Β οὐχ ὑπάρξει· καὶ τὸ μὲν συμπέρασμα
ἀληθές, αἱ δὲ προτάσεις ψευδεῖς.

Καὶ εἰ ἐπί τι ἑκατέρα ψευδής, ἔσται τὸ συμπέ-
ρασμα ἀληθές. οὐδὲν γὰρ κωλύει καὶ τὸ Α καὶ τὸ Β
τινὶ τῷ Γ ὑπάρχειν, καὶ τὸ Α τινὶ τῷ Β, οἷον τὸ
λευκὸν καὶ τὸ καλὸν τινὶ ζῴῳ ὑπάρχει, καὶ τὸ
25 λευκὸν τινὶ καλῷ. ἐὰν οὖν τεθῇ τὸ Α καὶ τὸ Β
παντὶ τῷ Γ ὑπάρχειν, αἱ μὲν προτάσεις ἐπί τι
ψευδεῖς, τὸ δὲ συμπέρασμα ἀληθές. καὶ στερη-
τικῆς δὲ τῆς ΑΓ τιθεμένης ὁμοίως. οὐδὲν γὰρ
κωλύει τὸ μὲν Α τινὶ τῷ Γ μὴ ὑπάρχειν τὸ δὲ Β
τινὶ ὑπάρχειν, καὶ τὸ Α τῷ Β μὴ παντὶ ὑπάρχειν,

IV. In the last figure too it will be possible to reach a true conclusion by means of false premisses: (i.) when both premisses are wholly false, (ii.) when each of them is partly false, (iii.) when one is wholly true and the other wholly false, (iv.) when one is partly false and the other wholly true; and *vice versa*; and in all other possible combinations of premisses. For (i.) there is no reason why, although neither A nor B applies to any C, A should not apply to some B: as, *e.g.*, neither 'man' nor 'that which walks on land' is a consequent of anything inanimate, yet 'man' applies to some things which walk on land. Thus if A and B are assumed to apply to all C, the premisses will be wholly false, but the conclusion will be true. Similarly too if one premiss is negative and the other affirmative. For it is possible for B to apply to no C, and A to all C, and for A not to apply to some B: as, *e.g.*, 'black' applies to no swan, and 'animal' to every swan, and 'animal' does not apply to everything black; so that if B is assumed to apply to all C, and A to no C, A will not apply to some B; and the conclusion will be true although the premisses are false.

Third figure. (1) Universal syllogisms.

(i.) Both premisses wholly false.

(ii.) So too if each of the premisses is partly false, the conclusion can be true. For there is no reason why both A and B should not apply to some C, while A applies to some B: as, *e.g.*, 'white' and 'beautiful' apply to some 'animal,' and 'white' to some 'beautiful.' Thus if A and B are taken to apply to all C, the premisses will be partly false, but the conclusion will be true. Similarly too if AC is taken as negative. For it is quite possible that A should not apply to some C, and B should apply to some C, and A should not apply to all B: as, *e.g.*, 'white' does not apply

(ii.) Both premisses partly false.

66 b
30 οἷον τὸ λευκὸν τινὶ ζῴῳ οὐχ ὑπάρχει, τὸ δὲ καλὸν
τινὶ ὑπάρχει, καὶ τὸ λευκὸν οὐ παντὶ καλῷ· ὥστ'
ἂν ληφθῇ τὸ μὲν Α μηδενὶ τῷ Γ τὸ δὲ Β παντί,
ἀμφότεραι μὲν αἱ προτάσεις ἐπί τι ψευδεῖς, τὸ δὲ
συμπέρασμα ἀληθές.

Ὡσαύτως δὲ καὶ τῆς μὲν ὅλης ψευδοῦς τῆς δ'
ὅλης ἀληθοῦς λαμβανομένης. ἐγχωρεῖ γὰρ καὶ τὸ
35 Α καὶ τὸ Β παντὶ τῷ Γ ἕπεσθαι, τὸ μέντοι Α τινὶ
τῷ Β μὴ ὑπάρχειν, οἷον ζῷον καὶ λευκὸν παντὶ
κύκνῳ ἕπεται, τὸ μέντοι ζῷον οὐ παντὶ ὑπάρχει
λευκῷ. τεθέντων οὖν ὅρων τούτων ἐὰν ληφθῇ τὸ
μὲν Β ὅλῳ τῷ Γ ὑπάρχειν τὸ δὲ Α ὅλῳ μὴ ὑπάρχειν,
ἡ μὲν ΒΓ ὅλη ἔσται ἀληθὴς ἡ δὲ ΑΓ ὅλη ψευδής,
40 καὶ τὸ συμπέρασμα ἀληθές. ὁμοίως δὲ καὶ εἰ τὸ
μὲν ΒΓ ψεῦδος τὸ δὲ ΑΓ ἀληθές· οἱ γὰρ αὐτοὶ ὅροι
67 a πρὸς τὴν ἀπόδειξιν [μέλαν, κύκνος, ἄψυχον].[1] ἀλλὰ
καὶ εἰ ἀμφότεραι λαμβάνοιντο καταφατικαί· οὐδὲν
γὰρ κωλύει τὸ μὲν Β παντὶ τῷ Γ ἕπεσθαι, τὸ δὲ Α
ὅλῳ μὴ ὑπάρχειν, καὶ τὸ Α τινὶ τῷ Β ὑπάρχειν,
5 οἷον κύκνῳ [μὲν][2] παντὶ ζῷον, μέλαν δ' οὐδενὶ
κύκνῳ, καὶ τὸ μέλαν ὑπάρχει τινὶ ζῴῳ· ὥστ' ἂν
ληφθῇ τὸ Α καὶ τὸ Β παντὶ τῷ Γ ὑπάρχειν, ἡ μὲν
ΒΓ ὅλη ἀληθὴς ἡ δὲ ΑΓ ὅλη ψευδής, καὶ τὸ
συμπέρασμα ἀληθές. ὁμοίως δὲ καὶ τῆς ΑΓ
ληφθείσης ἀληθοῦς· διὰ γὰρ τῶν αὐτῶν ὅρων ἡ
ἀπόδειξις.

10 Πάλιν τῆς μὲν ὅλης ἀληθοῦς οὔσης τῆς δ' ἐπί τι
ψευδοῦς. ἐγχωρεῖ γὰρ τὸ μὲν Β παντὶ τῷ Γ ὑπάρ-
χειν τὸ δὲ Α τινί, καὶ τὸ Α τινὶ τῷ Β, οἷον δίπουν

[1] secl. Waitz.
[2] om. Bnfu, Boethius, Waitz.

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[a] These are not the same terms as before; they are derived

to some animals, and 'beautiful' applies to some, and 'white' does not apply to everything beautiful; so that if A is assumed to apply to no C, and B to all C, both premisses will be partly false, but the conclusion will be true.

(iii.) One wholly false and one true premiss.

(iii.) So too if one premiss is wholly false and the other wholly true. For it is possible for both A and B to be consequents of all C, and yet for A not to apply to some B: as, *e.g.*, 'animal' and 'white' are consequents of all 'swan,' yet 'animal' does not apply to everything white. Thus these terms being posited, if it is assumed that B applies but A does not apply to the whole of C, BC will be wholly true and AC wholly false, and the conclusion will be true. Similarly too if BC is false and AC true; the same terms [black—swan—inanimate] [a] will serve for the purpose of proof. So too if both premisses are assumed as affirmative. For there is no reason why, while B is a consequent of all C, and A does not apply to the whole of C, A should not apply to some B: as, *e.g.*, 'animal' applies to every swan, 'black' to no swan, and 'black' to some animals; so that if A and B are assumed to apply to all C, BC will be wholly true, and AC wholly false, and the conclusion will be true. Similarly if the premiss AC which we assume is true; for the proof will be effected by means of the same terms.

(iv.) One true and one partly false premiss.

(iv.) So again when one premiss is wholly true and the other partly false. For it is possible for B to apply to all C, and A to some C, and for A to apply to some B: as, *e.g.*, 'biped' applies, but 'beautiful'

(according to the scholiast on 189 a 5-11) from the lost commentary of Alexander, who saw that a fresh set of examples was needed.

57 a

μὲν παντὶ ἀνθρώπῳ, καλὸν δ' οὐ παντί, καὶ τὸ καλὸν τινὶ δίποδι ὑπάρχει. ἐὰν οὖν ληφθῇ καὶ τὸ Α καὶ τὸ Β ὅλῳ τῷ Γ ὑπάρχειν, ἡ μὲν ΒΓ ὅλη ἀληθὴς ἡ δὲ ΑΓ ἐπί τι ψευδής, τὸ δὲ συμπέρασμα ἀληθές. ὁμοίως δὲ καὶ τῆς μὲν ΑΓ ἀληθοῦς τῆς δὲ ΒΓ ψευδοῦς ἐπί τι λαμβανομένης· μετατεθέντων γὰρ τῶν αὐτῶν ὅρων ἔσται ἡ ἀπόδειξις. καὶ τῆς μὲν στερητικῆς τῆς δὲ καταφατικῆς οὔσης. ἐπεὶ γὰρ ἐγχωρεῖ τὸ μὲν Β ὅλῳ τῷ Γ ὑπάρχειν τὸ δὲ Α τινί, καὶ ὅταν οὕτως ἔχωσιν οὐ παντὶ τῷ Β τὸ Α, ἐὰν ληφθῇ τὸ μὲν Β ὅλῳ τῷ Γ ὑπάρχειν τὸ δὲ Α μηδενί, ἡ μὲν στερητικὴ ἐπί τι ψευδής, ἡ δ' ἑτέρα ὅλη ἀληθὴς καὶ τὸ συμπέρασμα. πάλιν ἐπεὶ δέδεικται ὅτι τοῦ μὲν Α μηδενὶ ὑπάρχοντος τῷ Γ τοῦ δὲ Β τινὶ ἐγχωρεῖ τὸ Α τινὶ τῷ Β μὴ ὑπάρχειν, φανερὸν ὅτι καὶ τῆς μὲν ΑΓ ὅλης ἀληθοῦς οὔσης τῆς δὲ ΒΓ ἐπί τι ψευδοῦς ἐγχωρεῖ τὸ συμπέρασμα εἶναι ἀληθές. ἐὰν γὰρ ληφθῇ τὸ μὲν Α μηδενὶ τῷ Γ τὸ δὲ Β παντί, ἡ μὲν ΑΓ ὅλη ἀληθὴς ἡ δὲ ΒΓ ἐπί τι ψευδής.

Φανερὸν δή[1] καὶ ἐπὶ τῶν ἐν μέρει συλλογισμῶν ὅτι πάντως ἔσται διὰ ψευδῶν ἀληθές. οἱ γὰρ αὐτοὶ ὅροι ληπτέοι καὶ ὅταν καθόλου ὦσιν αἱ προτάσεις, οἱ μὲν ἐν τοῖς κατηγορικοῖς κατηγορικοί, οἱ δ' ἐν τοῖς στερητικοῖς στερητικοί. οὐδὲν γὰρ διαφέρει μηδενὶ ὑπάρχοντος παντὶ λαβεῖν ὑπάρχειν, καὶ τινὶ ὑπάρχοντος καθόλου λαβεῖν ὑπάρχειν πρὸς τὴν τῶν ὅρων ἔκθεσιν. ὁμοίως δὲ καὶ ἐπὶ τῶν στερητικῶν.

Φανερὸν οὖν ὅτι ἂν μὲν ᾖ τὸ συμπέρασμα ψεῦδος, ἀνάγκη ἐξ ὧν ὁ λόγος ψευδῆ εἶναι ἢ πάντα ἢ ἔνια,

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[1] δὴ scripsi: δέ.

does not apply, to all ' man,' and ' beautiful ' applies to some ' biped.' Thus if both A and B are assumed to apply to the whole of C, BC will be wholly true, and AC partly false, but the conclusion will be true. Similarly too if the assumed premiss AC is true and BC is partly false ; the proof can be effected by a rearrangement of the same terms. So too if one premiss is negative and the other affirmative. For since it is possible for B to apply to the whole and A to some of C, and when the terms are thus related A does not apply to all B, if B is assumed to apply to the whole and A to none of C, the negative premiss will be partly false, but the other will be wholly true, and the conclusion will be true. Again, since it has been shown [a] that when A applies to no C and B to some C, it is possible for A not to apply to some B, it is evident that when AC is wholly true and BC partly false, it is still possible for the conclusion to be true. For if A is assumed to apply to no C, and B to all C, AC will be wholly true and BC partly false.

(2) Particular syllogisms.

It is evident, then, that in the case of particular syllogisms also it will be possible under any conditions to reach a true conclusion by means of false premisses. For the same terms are to be assumed as when the premisses are universal : affirmative terms in affirmative and negative in negative syllogisms. For it makes no difference to the positing of the terms whether we assume that that which applies to none applies to all, or that that which applies to some applies universally. Similarly too in the case of negative syllogisms.

Why it is that false premisses

Thus it is evident that whereas if the conclusion is false the grounds of the argument, either all or

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[a] 54 a 1.

57 a ὅταν δ' ἀληθές, οὐκ ἀνάγκη ἀληθὲς εἶναι οὔτε τὶ
οὔτε πάντα, ἀλλ' ἔστι μηδενὸς ὄντος ἀληθοῦς τῶν
40 ἐν τῷ συλλογισμῷ τὸ συμπέρασμα ὁμοίως εἶναι
57 b ἀληθές, οὐ μὴν ἐξ ἀνάγκης. αἴτιον δ' ὅτι ὅταν δύο
ἔχῃ οὕτω πρὸς ἄλληλα ὥστε θατέρου ὄντος ἐξ
ἀνάγκης εἶναι θάτερον, τούτου μὴ ὄντος μὲν οὐδὲ
θάτερον ἔσται, ὄντος δ' οὐκ ἀνάγκη εἶναι θάτερον.
τοῦ δ' αὐτοῦ ὄντος καὶ μὴ ὄντος ἀδύνατον ἐξ
5 ἀνάγκης εἶναι τὸ αὐτό. λέγω δ' οἷον τοῦ Α ὄντος
λευκοῦ τὸ Β εἶναι μέγα ἐξ ἀνάγκης, καὶ μὴ ὄντος
λευκοῦ τοῦ Α τὸ Β εἶναι μέγα ἐξ ἀνάγκης. ὅταν
γὰρ τουδὶ ὄντος λευκοῦ τοῦ Α τοδὶ ἀνάγκη μέγα
εἶναι τὸ Β, μεγάλου δὲ τοῦ Β ὄντος τὸ Γ μὴ
λευκόν, ἀνάγκη, εἰ τὸ Α λευκόν, τὸ Γ μὴ εἶναι
10 λευκόν. καὶ ὅταν δύο ὄντων θατέρου ὄντος ἀνάγκη
θάτερον εἶναι, τούτου μὴ ὄντος ἀνάγκη τὸ Α μὴ
εἶναι. τοῦ δὴ Β μὴ ὄντος μεγάλου τὸ Α οὐχ οἷόν
τε λευκὸν εἶναι. τοῦ δὲ Α μὴ ὄντος λευκοῦ, εἰ
ἀνάγκη τὸ Β μέγα εἶναι, συμβαίνει ἐξ ἀνάγκης τοῦ
Β μεγάλου μὴ ὄντος αὐτὸ τὸ Β εἶναι μέγα. τοῦτο
15 δ' ἀδύνατον· εἰ γὰρ τὸ Β μή ἐστι μέγα, τὸ Α οὐκ
ἔσται λευκὸν ἐξ ἀνάγκης. εἰ οὖν μὴ ὄντος τούτου
λευκοῦ τὸ Β ἔσται μέγα, συμβαίνει, εἰ τὸ Β μή
ἐστι μέγα, εἶναι μέγα, ὡς διὰ τριῶν.

V. Τὸ δὲ κύκλῳ καὶ ἐξ ἀλλήλων δείκνυσθαί ἐστι
τὸ διὰ τοῦ συμπεράσματος καὶ τοῦ ἀνάπαλιν τῇ
20 κατηγορίᾳ τὴν ἑτέραν λαβόντα πρότασιν συμπεράνασθαι
τὴν λοιπήν, ἣν ἐλάμβανεν ἐν θατέρῳ συλλογισμῷ·
οἷον εἰ ἔδει δεῖξαι ὅτι τὸ Α τῷ Γ παντὶ

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[a] *i.e.* premiss.

[b] Because A stands for the conjunction of two premisses; *cf.* 34 a 16-24.

some of them, must be false, when the conclusion is true, it is not necessary for all or any of the grounds to be true; but even when no part[a] of the syllogism is true it is possible—although it does not necessarily follow—that the conclusion should be true. The reason for this is that when two things are so interrelated that when the first is the second must be, when the second is not, neither will the first be; but when the second is, the first need not necessarily be. For it is impossible that the same thing should *necessarily* be whether the same determining factor does or does not apply. I mean, for example, that it is impossible that B should necessarily be great both when A is white and when A is not white. For when, if this particular thing A is white, this particular thing B must be great, and if B is great C cannot be white, then if A is white, C cannot be white. And when, if the former of two things is, the latter must be, if the latter is not, the former, A, cannot be. Then when B is not great, A cannot be white. But if when A is not white B must be great, it follows of necessity that when B is not great B itself *is* great. But this is impossible; for if B is not great, A will necessarily not be white. Thus if B is to be great when A is not white, it follows that if B is not great, it is great, just as though the proof were effected by three terms.[b]

can yield a true conclusion.

V. Circular or reciprocal proof consists in using the conclusion and the simple conversion[c] of one premiss to demonstrate the remaining premiss, which was assumed in the original syllogism; as if, for example, supposing that it was required to prove that A applies to all C, and this had been proved by

Method of circular or reciprocal proof.

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[c] *i.e.* the premiss with subject and predicate interchanged.

57 b ὑπάρχει, ἔδειξε δὲ διὰ τοῦ Β, πάλιν εἰ δεικνύοι ὅτι
τὸ Α τῷ Β ὑπάρχει, λαβὼν τὸ μὲν Α τῷ Γ ὑπάρχειν
τὸ δὲ Γ τῷ Β, καὶ τὸ Α τῷ Β (πρότερον δ' ἀνά-
25 παλιν ἔλαβε τὸ Β τῷ Γ ὑπάρχειν)· ἢ εἰ ὅτι τὸ Β τῷ Γ
δεῖ δεῖξαι ὑπάρχον, εἰ λάβοι τὸ Α κατὰ τοῦ Γ, ὃ
ἦν συμπέρασμα, τὸ δὲ Β κατὰ τοῦ Α ὑπάρχειν
(πρότερον δ' ἐλήφθη ἀνάπαλιν τὸ Α κατὰ τοῦ Β).
ἄλλως δ' οὐκ ἔστιν ἐξ ἀλλήλων δεῖξαι. εἴτε γὰρ
30 ἄλλο μέσον λήψεται, οὐ κύκλῳ (οὐδὲν γὰρ λαμβά-
νεται τῶν αὐτῶν), εἴτε τούτων τι, ἀνάγκη θάτερον
μόνον· εἰ γὰρ ἄμφω, ταὐτὸ ἔσται συμπέρασμα, δεῖ
δ' ἕτερον.

Ἐν μὲν οὖν τοῖς μὴ ἀντιστρέφουσιν ἐξ ἀναπο-
δείκτου τῆς ἑτέρας προτάσεως γίγνεται ὁ συλ-
λογισμός· οὐ γὰρ ἔστιν ἀποδεῖξαι διὰ τούτων τῶν
35 ὅρων ὅτι τῷ μέσῳ τὸ τρίτον ὑπάρχει ἢ τῷ πρώτῳ
τὸ μέσον. ἐν δὲ τοῖς ἀντιστρέφουσιν ἔστι πάντα
δεικνύναι δι' ἀλλήλων, οἷον εἰ τὸ Α καὶ τὸ Β καὶ
τὸ Γ ἀντιστρέφουσιν ἀλλήλοις. δεδείχθω γὰρ τὸ
ΑΓ διὰ μέσου τοῦ Β, καὶ πάλιν τὸ ΑΒ διά τε τοῦ
συμπεράσματος καὶ διὰ τῆς ΒΓ προτάσεως ἀντι-
40 στραφείσης, ὡσαύτως δὲ καὶ τὸ ΒΓ διά τε τοῦ
58 a συμπεράσματος καὶ τῆς ΑΒ προτάσεως ἀντεστραμ-
μένης. δεῖ δὲ τήν τε ΓΒ καὶ τὴν ΒΑ πρότασιν
ἀποδεῖξαι· ταύταις γὰρ ἀναποδείκτοις κεχρήμεθα
μόναις. ἐὰν οὖν ληφθῇ τὸ Β παντὶ τῷ Γ ὑπάρχειν
καὶ τὸ Γ παντὶ τῷ Α, συλλογισμὸς ἔσται τοῦ Β
5 πρὸς τὸ Α. πάλιν ἐὰν ληφθῇ τὸ μὲν Γ παντὶ τῷ Α
τὸ δὲ Α παντὶ τῷ Β, παντὶ τῷ Β τὸ Γ ἀνάγκη

means of B, it were then to be proved in turn that A applies to B by assuming that A applies to C and C to B, and therefore A to B; whereas in the original syllogism it was conversely assumed that B applies to C; or if, supposing that it is required to prove that B applies to C, one should assume that A applies as the predicate of C, which was the conclusion before, and B as the predicate of A; whereas in the original syllogism it was conversely assumed that A is predicated of B. Reciprocal proof is impossible in any other way. For (1) if we assume a different middle term, the proof will not be circular, since none of the same propositions is assumed; and (2) if we assume any of them, it must be one only; for if both are assumed, we shall have the same conclusion as before, whereas we require another.

Thus where conversion is impossible, one of the premisses from which the syllogism results is undemonstrated; for it is impossible to demonstrate from the given terms that the third applies to the middle or the middle to the first term. But where conversion is possible, *i.e.*, if A and B and C are convertible with one another, they can all be proved reciprocally. For let AC be proved by means of the middle B, and AB again by means of the conclusion and the premiss BC converted, and BC also in the same way by means of the conclusion and the premiss AB after conversion. We must, however, prove the premisses CB and BA; for these are the only premisses of those which we have used that remain undemonstrated. If, then, B is assumed to apply to all C and C to all A, we shall have a syllogism giving the relation of B to A. Again, if C is assumed to apply to all A, and A to all B, C must apply to all B.

58 a ὑπάρχειν. ἐν ἀμφοτέροις δὴ τούτοις τοῖς συλλογισμοῖς ἡ ΓΑ πρότασις εἴληπται ἀναπόδεικτος (αἱ γὰρ ἕτεραι δεδειγμέναι ἦσαν), ὥστ' ἂν ταύτην ἀποδείξωμεν, ἅπασαι ἔσονται δεδειγμέναι δι' ἀλλήλων. ἐὰν οὖν ληφθῇ τὸ Γ παντὶ τῷ Β καὶ τὸ Β παντὶ τῷ Α ὑπάρχειν, ἀμφότεραί τε αἱ προτάσεις ἀποδεδειγμέναι λαμβάνονται, καὶ τὸ Γ τῷ Α ἀνάγκη ὑπάρχειν.

Φανερὸν οὖν ὅτι ἐν μόνοις τοῖς ἀντιστρέφουσι κύκλῳ καὶ δι' ἀλλήλων ἐνδέχεται γίγνεσθαι τὰς ἀποδείξεις, ἐν δὲ τοῖς ἄλλοις ὡς πρότερον εἴπομεν. συμβαίνει δὲ καὶ ἐν τούτοις αὐτῷ τῷ δεικνυμένῳ χρῆσθαι πρὸς τὴν ἀπόδειξιν· τὸ μὲν γὰρ Γ κατὰ τοῦ Β καὶ τὸ Β κατὰ τοῦ Α δείκνυται ληφθέντος τοῦ Γ κατὰ τοῦ Α λέγεσθαι, τὸ δὲ Γ κατὰ τοῦ Α διὰ τούτων δείκνυται τῶν προτάσεων, ὥστε τῷ συμπεράσματι χρώμεθα πρὸς τὴν ἀπόδειξιν.

Ἐπὶ δὲ τῶν στερητικῶν συλλογισμῶν ὧδε δείκνυται ἐξ ἀλλήλων. ἔστω τὸ μὲν Β παντὶ τῷ Γ ὑπάρχον, τὸ δὲ Α οὐδενὶ τῶν Β· συμπέρασμα ὅτι τὸ Α οὐδενὶ τῶν Γ. εἰ δὴ πάλιν δεῖ συμπεράνασθαι ὅτι τὸ Α οὐδενὶ τῶν Β, ὃ πάλαι ἔλαβεν, ἔσται τὸ μὲν Α μηδενὶ τῷ Γ τὸ δὲ Γ παντὶ τῷ Β· οὕτω γὰρ ἀνάπαλιν ἡ πρότασις. εἰ δ' ὅτι τὸ Β τῷ Γ δεῖ συμπεράνασθαι, οὐκέθ' ὁμοίως ἀντιστρεπτέον τὸ ΑΒ (ἡ γὰρ αὐτὴ πρότασις τὸ Β μηδενὶ τῷ Α καὶ τὸ Α μηδενὶ τῷ Β ὑπάρχειν), ἀλλὰ ληπτέον, ᾧ τὸ Α μηδενὶ ὑπάρχει, τὸ Β παντὶ ὑπάρχειν. ἔστω τὸ Α μηδενὶ τῶν Γ ὑπάρχον,[1] ὅπερ ἦν τὸ συμπέρασμα,

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[1] ὑπάρχον scripsi: ὑπάρχειν.

Now in both these syllogisms the premiss CA has been assumed without being demonstrated; the others were already proved. Thus if we demonstrate this, they will all have been proved reciprocally. If, then, C is assumed to apply to all B, and B to all A, both the premisses assumed have been demonstrated, and C must apply to all A.

Thus it is evident that circular and reciprocal demonstrations can only be effected where conversion is possible; in the case of other syllogisms they can only be used as described above. In these also it happens that we use the very thing which is to be proved for the purpose of the demonstration; for we prove that C is predicated of B and B of A by assuming that C is predicated of A, and we prove that C is predicated of A by means of these premisses; so that we use the conclusion for the purpose of the demonstration.

Reciprocal proof in negative syllogisms.

In negative syllogisms reciprocal proof is effected as follows. Let B apply to all C, and A to no B. The conclusion is that A applies to no C. Then if it is required to establish in turn that A applies to no B, which was assumed before, we shall have the premisses that A applies to no C, and that C applies to all B; for in this way the premiss BC is reversed. If, on the other hand, it is required to establish that B applies to C, the premiss AB must not be converted again as before (for the premiss 'B applies to no A' is the same as 'A applies to no B'); but we must assume that B applies to all of that to none of which A applies.[a] Let A apply to no C, which was the conclusion before,

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[a] Aristotle is guilty of *petitio principii*; this is exactly what is required to be proved.

58 a ᾧ δὲ τὸ Α μηδενί, τὸ Β εἰλήφθω παντὶ ὑπάρχειν· ἀνάγκη οὖν τὸ Β παντὶ τῷ Γ ὑπάρχειν.

Ὥστε τριῶν ὄντων ἕκαστον συμπέρασμα γέγονε, καὶ τὸ κύκλῳ ἀποδεικνύναι τοῦτ᾽ ἔστι, τὸ συμπέ- 35 ρασμα λαμβάνοντα καὶ ἀνάπαλιν τὴν ἑτέραν πρότασιν τὴν λοιπὴν συλλογίζεσθαι.

Ἐπὶ δὲ τῶν ἐν μέρει συλλογισμῶν τὴν μὲν καθόλου πρότασιν οὐκ ἔστιν ἀποδεῖξαι διὰ τῶν ἑτέρων, τὴν δὲ κατὰ μέρος ἔστιν. ὅτι μὲν οὖν οὐκ ἔστιν ἀποδεῖξαι τὴν καθόλου φανερόν· τὸ μὲν γὰρ καθόλου δείκνυται διὰ τῶν καθόλου, τὸ δὲ συμπέρασμα οὐκ ἔστι καθόλου, δεῖ δ᾽ ἐκ τοῦ 40 συμπεράσματος δεῖξαι καὶ τῆς ἑτέρας προτάσεως 58 b (ἔτι ὅλως οὐδὲ γίγνεται συλλογισμὸς ἀντιστραφείσης τῆς προτάσεως· ἐν μέρει γὰρ ἀμφότεραι γίγνονται αἱ προτάσεις)· τὴν δ᾽ ἐπὶ μέρους ἔστιν. δεδείχθω γὰρ τὸ Α κατὰ τινὸς τοῦ Γ διὰ τοῦ Β. ἐὰν οὖν ληφθῇ τὸ Β παντὶ τῷ Α καὶ τὸ συμπέρασμα 5 μένῃ, τὸ Β τινὶ τῷ Γ ὑπάρξει· γίγνεται γὰρ τὸ πρῶτον σχῆμα, καὶ τὸ Α μέσον.

Εἰ δὲ στερητικὸς ὁ συλλογισμός, τὴν μὲν καθόλου πρότασιν οὐκ ἔστι δεῖξαι, δι᾽ ὅ[1] καὶ πρότερον ἐλέχθη· τὴν δ᾽ ἐν μέρει ἔστιν,[2] ἐὰν[3] ὁμοίως ἀντιστραφῇ τὸ ΑΒ ὥσπερ κἀπὶ τῶν καθόλου,[4] οἷον ᾧ 10 τὸ Α τινὶ μὴ ὑπάρχει, τὸ Β τινὶ ὑπάρχειν· ἄλλως γὰρ οὐ γίγνεται συλλογισμὸς διὰ τὸ ἀποφατικὴν εἶναι τὴν ἐν μέρει πρότασιν.

VI. Ἐν δὲ τῷ δευτέρῳ σχήματι τὸ μὲν κατα-

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[1] δι᾽ ὃ Buhle: διό.

[2] ἔστιν om. Cn, Bekker.

[3] ἐὰν μὲν A^2Ccmfn^2, ἐὰν μὲν οὖν B^2.

[4] καθόλου AB^1: καθόλου, οὐκ ἔστι, διὰ προσλήψεως δ᾽ ἔστιν uolgo.

and let it be assumed that B applies to all of that to none of which A applies. Then B must apply to all C.

Thus each of the three propositions has been inferred as a conclusion; and that is what circular demonstration is, viz., to assume the conclusion and the converse of one premiss, and so infer the remaining premiss.

Reciprocal proof in particular syllogisms

In particular syllogisms the universal premiss cannot be demonstrated by means of the others, but the particular premiss can. That the universal premiss cannot be demonstrated is evident; for the universal is proved by universal premisses, but the conclusion is not universal, and we have to draw our proof from the conclusion and the other premiss. Moreover, if the premiss is converted no syllogism at all results; because both premisses become particular. The particular premiss, however, can be demonstrated. Let it be proved, by means of B, that A is stated of some C. Then if B is assumed to apply to all A, and the conclusion stands, B will apply to some C; for we get the first figure with A as the middle.

If on the other hand the syllogism is negative, the universal premiss cannot be proved, for the reason explained above. But the particular premiss can be proved, if AB is converted in the same way as in universal syllogisms; viz., to the effect that B applies to some of that to some of which A does not apply.[a] Otherwise no syllogism results, because the particular premiss is negative.

Reciprocal proof in th

VI. In the second figure the affirmative statement

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[a] *Cf.* 58 a 29 note.

φατικὸν οὐκ ἔστι δεῖξαι διὰ τούτου τοῦ τρόπου, τὸ δὲ στερητικὸν ἔστιν. τὸ μὲν οὖν κατηγορικὸν οὐ δείκνυται διὰ τὸ μὴ ἀμφοτέρας εἶναι τὰς προτάσεις καταφατικάς· τὸ γὰρ συμπέρασμα στερητικόν ἐστι, τὸ δὲ κατηγορικὸν ἐξ ἀμφοτέρων ἐδείκνυτο καταφατικῶν· τὸ δὲ στερητικὸν ὧδε δείκνυται. ὑπαρχέτω τὸ Α παντὶ τῷ Β τῷ δὲ Γ μηδενί· συμπέρασμα τὸ Β οὐδενὶ τῷ Γ. ἐὰν οὖν ληφθῇ τὸ Β παντὶ τῷ Α ὑπάρχον [τῷ δὲ Γ μηδενί],[1] ἀνάγκη τὸ Α μηδενὶ τῷ Γ ὑπάρχειν· γίγνεται γὰρ τὸ δεύτερον σχῆμα (μέσον τὸ Β). εἰ δὲ τὸ ΑΒ στερητικὸν ἐλήφθη θάτερον δὲ κατηγορικόν, τὸ πρῶτον ἔσται σχῆμα. τὸ μὲν γὰρ Γ παντὶ τῷ Α τὸ δὲ Β οὐδενὶ τῷ Γ, ὥστ' οὐδενὶ τῷ Α τὸ Β· οὐδ' ἄρα τὸ Α τῷ Β. διὰ μὲν οὖν τοῦ συμπεράσματος καὶ τῆς μιᾶς προτάσεως οὐ γίγνεται συλλογισμός, προσληφθείσης δ' ἑτέρας ἔσται.

Ἢν δὲ μὴ καθόλου ὁ συλλογισμὸς ᾖ, ἡ μὲν ἐν ὅλῳ πρότασις οὐ δείκνυται (διὰ τὴν αὐτὴν αἰτίαν ἥνπερ εἴπομεν καὶ πρότερον), ἡ δ' ἐν μέρει δείκνυται ὅταν ᾖ τὸ καθόλου κατηγορικόν. ὑπαρχέτω γὰρ τὸ Α παντὶ τῷ Β τῷ δὲ Γ μὴ παντί· συμπέρασμα ΒΓ. ἐὰν οὖν ληφθῇ τὸ Β παντὶ τῷ Α τῷ δὲ Γ οὐ παντί, τὸ Α τινὶ τῷ Γ οὐχ ὑπάρξει (μέσον Β). εἰ δ' ἐστὶν ἡ καθόλου στερητική, οὐ δειχθήσεται ἡ ΑΓ πρότασις ἀντιστραφέντος τοῦ ΑΒ· συμβαίνει γὰρ ἢ ἀμφοτέρας ἢ τὴν ἑτέραν πρότασιν γίγνεσθαι ἀποφατικήν, ὥστ' οὐκ ἔσται συλλογισμός. ἀλλ' ὁμοίως δειχθήσεται ὡς καὶ ἐπὶ τῶν

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[1] τῷ δὲ Γ μηδενί Cm et in marg. B²: om. cet.

cannot be proved by this means, but the negative statement can. The affirmative statement cannot be proved because the premisses are not both affirmative; for the conclusion is negative, and the affirmative statement can only be proved, as we have seen, by premisses which are both affirmative. The negative statement is proved as follows. Let A apply to all B, but to no C. The conclusion is that B applies to no C. Then if B is assumed to apply to all A, A must apply to no C; for we get the second figure with B as the middle term. If AB has been assumed as negative and the other premiss as affirmative, we shall have the first figure; for C applies to all A, and B to no C, so that B applies to no A, and therefore A to no B. Thus we get no syllogism by means of the conclusion and one premiss, but we shall have a syllogism if we assume a further premiss.[a]

second figure.

If the syllogism is not universal, the universal premiss cannot be proved, for the same reason which we have explained above[b]; but the particular premiss can be proved when the universal statement is affirmative. Let A apply to all B, but not to all C. The conclusion is BC. Then if B is assumed to apply to all A, but not to all C, A will not apply to some C. The middle term is B. If, however, the universal premiss is negative, the premiss AC cannot be proved by the conversion of AB; for it follows that either one or both of the premisses become negative, so that there will be no syllogism. It can, however, be proved in a similar way to that which was used in the case of universal syllogisms: *i.e.*, if it is assumed that

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[a] *i.e.* the converse of the conclusion.

[b] 58 a 36 ff.

καθόλου, ἐὰν ληφθῇ ᾧ τὸ Β τινὶ μὴ ὑπάρχει τὸ Α τινὶ ὑπάρχειν.

VII. Ἐπὶ δὲ τοῦ τρίτου σχήματος ὅταν μὲν ἀμφότεραι αἱ προτάσεις καθόλου ληφθῶσιν, οὐκ ἐνδέχεται δεῖξαι δι' ἀλλήλων· τὸ μὲν γὰρ καθόλου δείκνυται διὰ τῶν καθόλου, τὸ δ' ἐν τούτῳ συμπέρασμα ἀεὶ κατὰ μέρος, ὥστε φανερὸν ὅτι ὅλως οὐκ ἐνδέχεται δεῖξαι διὰ τούτου τοῦ σχήματος τὴν καθόλου πρότασιν. ἐὰν δ' ἡ μὲν ᾖ καθόλου ἡ δ' ἐν μέρει, ποτὲ μὲν ἔσται ποτὲ δ' οὐκ ἔσται. ὅταν μὲν οὖν ἀμφότεραι κατηγορικαὶ ληφθῶσι καὶ τὸ καθόλου γένηται πρὸς τῷ ἐλάττονι ἄκρῳ, ἔσται, ὅταν δὲ πρὸς θατέρῳ, οὐκ ἔσται. ὑπαρχέτω γὰρ τὸ Α παντὶ τῷ Γ τὸ δὲ Β τινί· συμπέρασμα τὸ ΑΒ. ἐὰν οὖν ληφθῇ τὸ Γ παντὶ τῷ Α ὑπάρχειν, τὸ μὲν Γ δέδεικται τινὶ τῷ Β ὑπάρχον, τὸ δὲ Β τινὶ τῷ Γ οὐ δέδεικται. καίτοι ἀνάγκη, εἰ τὸ Γ τινὶ τῷ Β, καὶ τὸ Β τινὶ τῷ Γ ὑπάρχειν. ἀλλ' οὐ ταὐτόν ἐστι τόδε τῷδε καὶ τόδε τῷδε ὑπάρχειν, ἀλλὰ προσληπτέον εἰ τόδε τινὶ τῷδε, καὶ θάτερον τινὶ τῷδε· τούτου δὲ ληφθέντος οὐκέτι γίγνεται ἐκ τοῦ συμπεράσματος καὶ τῆς ἑτέρας προτάσεως ὁ συλλογισμός. εἰ δὲ τὸ μὲν Β παντὶ τῷ Γ τὸ δὲ Α τινὶ τῷ Γ, ἔσται δεῖξαι τὸ ΑΓ ὅταν ληφθῇ τὸ μὲν Γ παντὶ τῷ Β ὑπάρχειν τὸ δὲ Α τινί. εἰ γὰρ τὸ Γ παντὶ τῷ Β τὸ δὲ Α τινὶ τῷ Β, ἀνάγκη τὸ Α τινὶ τῷ Γ ὑπάρχειν (μέσον τὸ Β).

Καὶ ὅταν ᾖ ἡ μὲν κατηγορικὴ ἡ δὲ στερητική, καθόλου δ' ἡ κατηγορική, δειχθήσεται ἡ ἑτέρα. ὑπαρχέτω γὰρ τὸ Β παντὶ τῷ Γ, τὸ δὲ Α τινὶ μὴ ὑπαρχέτω· συμπέρασμα ὅτι τὸ Α τινὶ τῷ Β οὐχ

A applies to some of that to some of which B does not apply.[a]

Reciprocal proof in the third figure.

VII. In the third figure, when both premisses are assumed as universal, reciprocal proof is impossible; for the universal statement can only be proved by means of universal statements, and in this figure the conclusion is always particular; so that it is evident that the universal premiss cannot be proved at all by means of this figure. If, however, one premiss is universal and the other particular, reciprocal proof will sometimes be possible and sometimes not. When both premisses are assumed as affirmative, and the universal relation is attached to the minor extreme, it will be possible; but not when the universal relation is attached to the other extreme. For let A apply to all C, and B to some C. The conclusion is AB. Then if C is assumed to apply to all A, it is proved that C applies to some B, but not that B applies to some C. It may be urged that if C applies to some B, B must also apply to some C; but 'X applies to Y' is not the same as 'Y applies to X'; we must make the further assumption that if X applies to some Y, Y also applies to some X; and if we assume this, the syllogism is no longer effected by means of the conclusion and the other premiss. But if B applies to all C, and A to some C, the premiss AC can be proved after assuming that C applies to all and A to some B. For if C applies to all B, and A to some B, A must apply to some B. B is the middle term.

When one premiss is affirmative and the other negative, and the affirmative premiss is universal, the other can be proved. For let B apply to all C, and let A not apply to some C. The conclusion is that A

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[a] *Cf.* 58 a 29, b 9.

59 a
ὑπάρχει. ἐὰν οὖν προσληφθῇ τὸ Γ παντὶ τῷ Β ὑπ-
άρχειν, ἀνάγκη τὸ Α τινὶ τῷ Γ μὴ ὑπάρχειν (μέσον
τὸ Β). ὅταν δ' ἡ στερητικὴ καθόλου γένηται οὐ
25 δείκνυται ἡ ἑτέρα, εἰ μὴ ὥσπερ ἐπὶ τῶν πρότερον,
ἐὰν ληφθῇ ᾧ τοῦτο τινὶ μὴ ὑπάρχει θάτερον τινὶ
ὑπάρχειν, οἷον εἰ τὸ μὲν Α μηδενὶ τῷ Γ τὸ δὲ Β
τινί· συμπέρασμα ὅτι τὸ Α τινὶ τῷ Β οὐχ ὑπάρχει.
ἐὰν οὖν ληφθῇ ᾧ τὸ Α τινὶ μὴ ὑπάρχει τὸ Γ
τινὶ ὑπάρχειν, ἀνάγκη τὸ Γ τινὶ τῶν Β ὑπάρχειν.
30 ἄλλως δ' οὐκ ἔστιν ἀντιστρέφοντα τὴν καθόλου
πρότασιν δεῖξαι τὴν ἑτέραν· οὐδαμῶς γὰρ ἔσται
συλλογισμός.

Φανερὸν οὖν ὅτι ἐν μὲν τῷ πρώτῳ σχήματι ἡ δι'
ἀλλήλων δεῖξις διά τε τοῦ τρίτου καὶ διὰ τοῦ πρώ-
του γίγνεται σχήματος. κατηγορικοῦ μὲν γὰρ
35 ὄντος τοῦ συμπεράσματος διὰ τοῦ πρώτου, στερητι-
κοῦ δὲ διὰ τοῦ ἐσχάτου· λαμβάνεται γὰρ ᾧ τοῦτο
μηδενὶ θάτερον παντὶ ὑπάρχειν. ἐν δὲ τῷ μέσῳ
καθόλου μὲν ὄντος τοῦ συλλογισμοῦ δι' αὐτοῦ τε
καὶ διὰ τοῦ πρώτου σχήματος, ὅταν δ' ἐν μέρει, δι'
αὐτοῦ τε καὶ τοῦ ἐσχάτου. ἐν δὲ τῷ τρίτῳ δι'
40 αὐτοῦ πάντες. φανερὸν δὲ καὶ ὅτι ἐν τῷ τρίτῳ καὶ
τῷ μέσῳ οἱ μὴ δι' αὐτῶν γιγνόμενοι συλλογισμοὶ
ἢ οὐκ εἰσὶ κατὰ τὴν κύκλῳ δεῖξιν ἢ ἀτελεῖς.

59 b VIII. Τὸ δ' ἀντιστρέφειν ἐστὶ τὸ μετατιθέντα
τὸ συμπέρασμα ποιεῖν τὸν συλλογισμὸν ὅτι ἢ τὸ
ἄκρον τῷ μέσῳ οὐχ ὑπάρξει ἢ τοῦτο τῷ τελευταίῳ.
ἀνάγκη γὰρ τοῦ συμπεράσματος ἀντιστραφέντος
5 καὶ τῆς ἑτέρας μενούσης προτάσεως ἀναιρεῖσθαι

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[a] 58 a 29, b 9, 37.

[b] *Cf.* 58 b 22-27, 59 a 6-14.

[c] *i.e.* changing its quality, with or without change of

does not apply to some B. Then if it is further assumed that C applies to all B, it must follow that A does not apply to some C. The middle term is B. But when the negative premiss is universal, the other cannot be proved, unless, as in the previous examples,[a] it is assumed that where one term does not apply to some, the other does apply to some. *E.g.*, if it is assumed that A applies to no C, and B to some C, the conclusion is that A does not apply to some B. Then if it is assumed that C applies to some of that to some of which A does not apply, C must apply to some B. It is impossible in any other way by converting the universal premiss to prove the other, for in no case will there be a syllogism.

The figures used in reciprocal proof.

Thus it is evident that in the first figure reciprocal proof is effected both by the third and by the first figure; by the first when the conclusion is affirmative, and by the last when it is negative; for it is assumed that where one term applies to none, the other applies to all. In the middle figure, when the syllogism is universal, reciprocal proof is possible both by that figure itself and by the first figure; when it is particular, both by that figure and by the last. In the third figure all proofs are by the figure itself. It is also evident that in the third and middle figures such syllogisms as are not effected by these figures themselves are either incompatible with circular proof or imperfect.[b]

Conversion of syllogisms.

VIII. Converting a syllogism consists in reversing[c] the conclusion and so constructing the syllogism that either the major extreme will not apply to the middle or the latter will not apply to the last term. For if the conclusion is converted and one premiss remains

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quantity. The same meaning attaches (in this and the two following chapters) to 'converting.'

τὴν λοιπήν· εἰ γὰρ ἔσται, καὶ τὸ συμπέρασμα ἔσται. διαφέρει δὲ τὸ ἀντικειμένως ἢ ἐναντίως ἀντιστρέφειν τὸ συμπέρασμα· οὐ γὰρ ὁ αὐτὸς γίγνεται συλλογισμὸς ἑκατέρως ἀντιστραφέντος· δῆλον δὲ τοῦτ' ἔσται διὰ τῶν ἑπομένων (λέγω δ' ἀντικεῖσθαι μὲν τὸ παντὶ τῷ οὐ παντὶ καὶ τὸ τινὶ τῷ οὐδενί, ἐναντίως δὲ τὸ παντὶ τῷ οὐδενὶ καὶ τὸ τινὶ τῷ οὐ τινὶ ὑπάρχειν).

Ἔστω γὰρ δεδειγμένον τὸ Α κατὰ τοῦ Γ διὰ μέσου τοῦ Β. εἰ δὴ τὸ Α ληφθείη μηδενὶ τῷ Γ ὑπάρχειν τῷ δὲ Β παντί, οὐδενὶ τῷ Γ ὑπάρξει τὸ Β. καὶ εἰ τὸ μὲν Α μηδενὶ τῷ Γ τὸ δὲ Β παντὶ τῷ Γ, τὸ Α οὐ παντὶ τῷ Β καὶ οὐχὶ ὅλως οὐδενί· οὐ γὰρ ἐδείκνυτο τὸ καθόλου διὰ τοῦ ἐσχάτου σχήματος. ὅλως δὲ τὴν πρὸς τῷ μείζονι ἄκρῳ πρότασιν οὐκ ἔστιν ἀνασκευάσαι καθόλου διὰ τῆς ἀντιστροφῆς· ἀεὶ γὰρ ἀναιρεῖται διὰ τοῦ τρίτου σχήματος· ἀνάγκη γὰρ πρὸς τὸ ἔσχατον ἄκρον ἀμφοτέρας λαβεῖν τὰς προτάσεις.

Καὶ εἰ στερητικὸς ὁ συλλογισμὸς ὡσαύτως. δεδείχθω γὰρ τὸ Α μηδενὶ τῷ Γ ὑπάρχειν διὰ τοῦ Β. οὐκοῦν ἐὰν ληφθῇ τὸ Α τῷ Γ παντὶ ὑπάρχειν τῷ δὲ Β μηδενί, οὐδενὶ τῶν Γ τὸ Β ὑπάρξει· καὶ εἰ τὸ Α καὶ τὸ Β παντὶ τῷ Γ, τὸ Α τινὶ τῷ Β· ἀλλ' οὐδενὶ ὑπῆρχεν.

Ἐὰν δ' ἀντικειμένως ἀντιστραφῇ τὸ συμπέρασμα, καὶ οἱ συλλογισμοὶ ἀντικείμενοι καὶ οὐ καθόλου ἔσονται· γίγνεται γὰρ ἡ ἑτέρα πρότασις ἐν μέρει, ὥστε καὶ τὸ συμπέρασμα ἔσται κατὰ μέρος. ἔστω γὰρ κατηγορικὸς ὁ συλλογισμός, καὶ ἀντιστρεφέ-

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[a] *Cf. De Interp.* 17 b 16 ff.

[b] 29 a 16.

as before, the remaining premiss must be invalidated; for if it is to be valid, the conclusion must also be valid. It makes a difference, however, whether we reverse the conclusion in the contradictory or in the contrary sense; for we do not get the same syllogism by both modes of reversal. This will be clear from the following explanation. (By the *contradictory* of 'applying to all' I mean 'not applying to all,' and of 'applying to some' 'applying to none'; whereas the *contrary* of 'applying to all' is 'applying to none,' and of 'applying to some' is 'not applying to some.') [a]

Contradictory and contrary conversion.

First figure. A. Universal syllogisms. (1) Contrary conversion.

Let us take it as proved, by means of the middle term B, that A is stated of all C. Then supposing that A is assumed to apply to no C, but to all B, B will apply to no C. And if A applies to no C, but B applies to all C, A will not apply to all B; but it does not at all follow that it will apply to no B, for, as we have seen,[b] the universal statement cannot be proved by the last figure. In general it is impossible to invalidate the major premiss universally by conversion, because the refutation is always by the third figure, since we must assume both premisses in relation to the last extreme.

The same also holds if the syllogism is negative. Let it be proved, by means of the middle term B, that A applies to no C. Then if A is assumed to apply to all C, but to no B, B will apply to no C. And if A and B apply to all C, A will apply to some B; but *ex hypothesi* it applies to none.

(2) Contradictory conversion.

If, however, the conclusion is converted in the contradictory sense, the syllogisms will also be contradictory, and not universal; for one premiss becomes particular, and so the conclusion will also be particular. For let the syllogism be affirmative, and

59 b
30 σθω οὕτως. οὐκοῦν εἰ τὸ Α οὐ παντὶ τῷ Γ τῷ
δὲ Β παντί, τὸ Β οὐ παντὶ τῷ Γ· καὶ εἰ τὸ μὲν Α
μὴ παντὶ τῷ Γ τὸ δὲ Β παντί, τὸ Α οὐ παντὶ τῷ Β.
ὁμοίως δὲ καὶ εἰ στερητικὸς ὁ συλλογισμός. εἰ
γὰρ τὸ Α τινὶ τῷ Γ ὑπάρχει τῷ δὲ Β μηδενί, τὸ
Β τινὶ τῷ Γ οὐχ ὑπάρξει, οὐχ ἁπλῶς οὐδενί· καὶ
35 εἰ τὸ μὲν Α τῷ Γ τινὶ τὸ δὲ Β παντί, ὥσπερ ἐν
ἀρχῇ ἐλήφθη, τὸ Α τινὶ τῷ Β ὑπάρξει.

Ἐπὶ δὲ τῶν ἐν μέρει συλλογισμῶν ὅταν μὲν
ἀντικειμένως ἀντιστρέφηται τὸ συμπέρασμα ἀναιροῦνται
ἀμφότεραι αἱ προτάσεις, ὅταν δ' ἐναντίως
40 οὐδετέρα. οὐ γὰρ ἔτι συμβαίνει, καθάπερ ἐν τοῖς
καθόλου, ἀναιρεῖν ἐλλείποντος τοῦ συμπεράσματος
60 a κατὰ τὴν ἀντιστροφήν, ἀλλ' οὐδ' ὅλως ἀναιρεῖν.
δεδείχθω γὰρ τὸ Α κατὰ τινὸς τοῦ Γ. οὐκοῦν ἂν
ληφθῇ τὸ Α μηδενὶ τῷ Γ ὑπάρχειν τὸ δὲ Β τινί,
τὸ Α τῷ Β τινὶ οὐχ ὑπάρξει· καὶ εἰ τὸ Α μηδενὶ
τῷ Γ τῷ δὲ Β παντί, οὐδενὶ τῷ Γ τὸ Β· ὥστ'
5 ἀναιροῦνται ἀμφότεραι. ἐὰν δ' ἐναντίως ἀντιστραφῇ,
οὐδετέρα. εἰ γὰρ τὸ Α τινὶ τῷ Γ μὴ ὑπάρχει
τῷ δὲ Β παντί, τὸ Β τινὶ τῷ Γ οὐχ ὑπάρξει. ἀλλ'
οὔπω ἀναιρεῖται τὸ ἐξ ἀρχῆς, ἐνδέχεται γὰρ τινὶ
ὑπάρχειν καὶ τινὶ μὴ ὑπάρχειν. τῆς δὲ καθόλου
τῆς ΑΒ ὅλως οὐδὲ γίγνεται συλλογισμός· εἰ γὰρ
10 τὸ μὲν Α τινὶ τῶν Γ μὴ ὑπάρχει τὸ δὲ Β τινὶ
ὑπάρχει, οὐδετέρα καθόλου τῶν προτάσεων. ὁμοίως
δὲ καὶ εἰ στερητικὸς ὁ συλλογισμός· εἰ μὲν γὰρ
ληφθείη τὸ Α παντὶ τῷ Γ ὑπάρχειν, ἀναιροῦνται
ἀμφότεραι, εἰ δὲ τινί, οὐδετέρα· ἀπόδειξις δ' ἡ
αὐτή.

let it be converted in the sense just described. Then if A does not apply to all C, but applies to all B, B will not apply to all C. And if A does not apply to all C, but B does, A will not apply to all B. Similarly too if the syllogism is negative. For if A applies to some C but to no B, B will not apply to some C; it will not apply absolutely to none. And if A applies to some and B to all C, as was originally assumed, A will apply to some B.

B. Particular syllogisms. Refutation is possible by contradictory, but not by contrary conversion.

In the case of particular syllogisms, (1) when the conclusion is converted in the contradictory sense, both premisses are refuted; but (2) when it is converted in the contrary sense, neither premiss is refuted. For the result is no longer, as it was in the universal syllogisms, a refutation in which the conclusion after conversion lacks universality; on the contrary, there is no refutation at all. (1) Let it be proved that A is stated of some C. Then if A is assumed to apply to no C but to some B, A will not apply to some B. And if A applies to no C but to all B, B will apply to no C. Thus both premisses are refuted. But (2) if the conclusion is converted in the contrary sense, neither is refuted. For if A does not apply to some C, but applies to all B, B will not apply to some C. Yet the original assumption is not yet refuted, because it is possible to apply to some and yet not to apply to some. As for the universal premiss AB, no syllogism at all can be obtained to refute it; for if A does not and B does apply to some C, neither premiss is universal. Similarly too if the syllogism is negative. For if A is assumed to apply to all C, both premisses are refuted; but if to some C, neither is refuted. The proof is the same as before.

IX. Ἐν δὲ τῷ δευτέρῳ σχήματι τὴν μὲν πρὸς τῷ μείζονι ἄκρῳ πρότασιν οὐκ ἔστιν ἀνελεῖν ἐναντίως, ὁποτερωσοῦν τῆς ἀντιστροφῆς γιγνομένης· ἀεὶ γὰρ ἔσται τὸ συμπέρασμα ἐν τῷ τρίτῳ σχήματι, καθόλου δ' οὐκ ἦν ἐν τούτῳ συλλογισμός. τὴν δ' ἑτέραν ὁμοίως ἀναιρήσομεν τῇ ἀντιστροφῇ (λέγω δὲ τὸ ὁμοίως, εἰ μὲν ἐναντίως ἀντιστρέφεται, ἐναντίως, εἰ δ' ἀντικειμένως, ἀντικειμένως).

Ὑπαρχέτω γὰρ τὸ Α παντὶ τῷ Β τῷ δὲ Γ μηδενί· συμπέρασμα ΒΓ. ἐὰν οὖν ληφθῇ τὸ Β παντὶ τῷ Γ ὑπάρχειν καὶ τὸ ΑΒ μένῃ, τὸ Α παντὶ τῷ Γ ὑπάρξει· γίγνεται γὰρ τὸ πρῶτον σχῆμα. εἰ δὲ τὸ Β παντὶ τῷ Γ τὸ δὲ Α μηδενὶ τῷ Γ, τὸ Α οὐ παντὶ τῷ Β· σχῆμα τὸ ἔσχατον. ἐὰν δ' ἀντικειμένως ἀντιστραφῇ τὸ ΒΓ, ἡ μὲν ΑΒ ὁμοίως δειχθήσεται, ἡ δὲ ΑΓ ἀντικειμένως. εἰ γὰρ τὸ Β τινὶ τῷ Γ τὸ δὲ Α μηδενὶ τῷ Γ, τὸ Α τινὶ τῷ Β οὐχ ὑπάρξει. πάλιν εἰ τὸ Β τινὶ τῷ Γ τὸ δὲ Α παντὶ τῷ Β, τὸ Α τινὶ τῷ Γ, ὥστ' ἀντικειμένως γίγνεται ὁ συλλογισμός. ὁμοίως δὲ δειχθήσεται καὶ εἰ ἀνάπαλιν ἔχοιεν αἱ προτάσεις.

Εἰ δ' ἔστιν ἐπὶ μέρους ὁ συλλογισμός, ἐναντίως μὲν ἀντιστρεφομένου τοῦ συμπεράσματος οὐδετέρα τῶν προτάσεων ἀναιρεῖται, καθάπερ οὐδ' ἐν τῷ πρώτῳ σχήματι, ἀντικειμένως δ' ἀμφότεραι. κείσθω γὰρ τὸ Α τῷ μὲν Β μηδενὶ ὑπάρχειν τῷ δὲ Γ τινί· συμπέρασμα ΒΓ. ἐὰν οὖν τεθῇ τὸ Β τινὶ τῷ Γ ὑπάρχειν καὶ τὸ ΑΒ μένῃ, συμπέρασμα ἔσται ὅτι τὸ Α τινὶ τῷ Γ οὐχ ὑπάρχει. ἀλλ' οὐκ ἀνήρηται τὸ ἐξ ἀρχῆς· ἐνδέχεται γὰρ τινὶ ὑπάρχειν καὶ

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[a] 29 a 16 ; *cf.* 59 b 15.

[b] *i.e.* refuted.

IX. In the second figure, in whichever sense the conversion is effected, the major premiss cannot be refuted in the contrary sense; for the conclusion will always be obtained in the third figure, and we have seen [a] that in it there is no universal syllogism. The other premiss, however, can be refuted in the same sense as the conversion. By 'in the same sense' I mean that if the conversion is contrary the refutation is in the contrary sense, and if contradictory, in the contradictory sense.

Conversion in the second figure.

For example, let A apply to all B but to no C. The conclusion is BC. Then if B is assumed to apply to all C, and AB stands, A will apply to all C; for we get the first figure. But if B applies to all C, and A to no C, A will not apply to all B. This is the last figure. If on the other hand BC is converted in the contradictory sense, AB will be proved [b] as before, but AC will be refuted by its contradictory. For if B applies to some C, and A to no C, A will not apply to some B; and again if B applies to some C, and A to all B, A will apply to some C, so that we get a conclusion in the contrary sense. The proof will be similar also if the premisses are in the opposite relation.

Universal syllogisms.

If, however, the syllogism is particular, when the conclusion is converted in the contrary sense, neither of the premisses is refuted, just as neither was refuted in the first figure [c]; but when in the contradictory sense, both are refuted. For let it be supposed that A applies to no B but to some C. The conclusion is BC. Then if B is taken to apply to some C, and AB stands, the conclusion will be that A does not apply to some C. But the original premiss is not refuted; for it is possible both to apply to some and not to

Particular syllogisms.

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[c] 59 b 39—60 a 1, 60 a 5-14.

μὴ ὑπάρχειν. πάλιν εἰ τὸ Β τινὶ τῷ Γ καὶ τὸ Α τινὶ τῷ Γ, οὐκ ἔσται συλλογισμός· οὐδέτερον γὰρ καθόλου τῶν εἰλημμένων· ὥστ' οὐκ ἀναιρεῖται τὸ ΑΒ. ἐὰν δ' ἀντικειμένως ἀντιστρέφηται, ἀναιροῦνται ἀμφότεραι. εἰ γὰρ τὸ Β παντὶ τῷ Γ τὸ δὲ Α μηδενὶ τῷ Β, οὐδενὶ τῷ Γ τὸ Α· ἦν δὲ τινί. πάλιν εἰ τὸ Β παντὶ τῷ Γ τὸ δὲ Α τινὶ τῷ Γ, τινὶ τῷ Β τὸ Α. ἡ αὐτὴ δ' ἀπόδειξις καὶ εἰ τὸ καθόλου κατηγορικόν.

X. Ἐπὶ δὲ τοῦ τρίτου σχήματος ὅταν μὲν ἐναντίως ἀντιστρέφηται τὸ συμπέρασμα, οὐδετέρα τῶν προτάσεων ἀναιρεῖται κατ' οὐδένα τῶν συλλογισμῶν, ὅταν δ' ἀντικειμένως, ἀμφότεραι καὶ ἐν ἅπασιν. δεδείχθω γὰρ τὸ Α τινὶ τῷ Β ὑπάρχον, μέσον δ' εἰλήφθω τὸ Γ, ἔστωσαν δὲ καθόλου αἱ προτάσεις. οὐκοῦν ἐὰν ληφθῇ τὸ Α τινὶ τῷ Β μὴ ὑπάρχειν τὸ δὲ Β παντὶ τῷ Γ, οὐ γίγνεται συλλογισμὸς τοῦ Α καὶ τοῦ Γ. οὐδ' εἰ τὸ Α τῷ μὲν Β τινὶ μὴ ὑπάρχει τῷ δὲ Γ παντί, οὐκ ἔσται τοῦ Β καὶ τοῦ Γ συλλογισμός. ὁμοίως δὲ δειχθήσεται καὶ εἰ μὴ καθόλου αἱ προτάσεις. ἢ γὰρ ἀμφοτέρας ἀνάγκη κατὰ μέρος εἶναι διὰ τῆς ἀντιστροφῆς, ἢ τὸ καθόλου πρὸς τῷ ἐλάττονι ἄκρῳ γίγνεσθαι· οὕτω δ' οὐκ ἦν συλλογισμὸς οὔτ' ἐν τῷ πρώτῳ σχήματι οὔτ' ἐν τῷ μέσῳ.

Ἐὰν δ' ἀντικειμένως ἀντιστρέφηται,[1] αἱ προτάσεις ἀναιροῦνται ἀμφότεραι. εἰ γὰρ τὸ Α μηδενὶ τῷ Β τὸ δὲ Β παντὶ τῷ Γ, τὸ Α οὐδενὶ τῷ Γ· πάλιν εἰ τὸ Α τῷ μὲν Β μηδενὶ τῷ δὲ Γ παντί, τὸ Β οὐδενὶ τῷ Γ. καὶ εἰ ἡ ἑτέρα μὴ καθόλου ὡσαύτως. εἰ

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[1] ἀντιστρέφηται Philoponus (?), Jenkinson: ἀντιστρέφωνται codd.

apply to some. Again, if B applies to some C and A to some C, there will be no syllogism; for neither of the assumptions is universal. Thus AB is not refuted. If, however, the conclusion is converted in the contradictory sense, both premisses are refuted. For if B applies to all C and A to no B, A will apply to no C; whereas before it applied to some. Again, if B applies to all C and A to some C, A will apply to some B. The proof will be the same too if the universal statement is affirmative.

Third figure. Refutation is not by contrary but only by contradictory conversion. (1) in affirmative

X. In the third figure, when the conclusion is converted in the contrary sense, neither premiss is refuted in any syllogism; but when in the contradictory sense, both are refuted in all syllogisms. For let it be proved that A applies to some B, and let C be assumed as the middle term, and let the premisses be universal. Then if A is assumed not to apply to some B, and B to apply to all C, we get no syllogism relating A and C. Again, if A does not apply to some B, but applies to all C, there will be no syllogism relating B and C. There will also be a similar proof if the premisses are not universal; for either both premisses must be particular as the result of conversion, or the universal statement must become attached to the minor extreme; and under these conditions there is no syllogism, as we have seen,[a] either in the first or in the middle figure.

If, however, the conclusion is converted in the contradictory sense, both premisses are refuted. For if A applies to no B, and B to all C, A will apply to no C. Again, if A applies to no B but to all C, B will apply to no C. The same also holds if the other premiss is

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[a] 26 a 17-21, 27 a 4-12.

γὰρ τὸ Α μηδενὶ τῷ Β τὸ δὲ Β τινὶ τῷ Γ, τὸ Α τινὶ τῷ Γ οὐχ ὑπάρξει· εἰ δὲ τὸ Α τῷ μὲν Β μηδενὶ τῷ δὲ Γ παντί, οὐδενὶ τῷ Γ τὸ Β.

Ὁμοίως δὲ καὶ εἰ στερητικὸς ὁ συλλογισμός. δεδείχθω γὰρ τὸ Α τινὶ τῷ Β μὴ ὑπάρχον, ἔστω δὲ κατηγορικὸν μὲν τὸ ΒΓ ἀποφατικὸν δὲ τὸ ΑΓ· οὕτω γὰρ ἐγίγνετο ὁ συλλογισμός. ὅταν μὲν οὖν τὸ ἐναντίον ληφθῇ τῷ συμπεράσματι, οὐκ ἔσται συλλογισμός. εἰ γὰρ τὸ Α τινὶ τῷ Β τὸ δὲ Β παντὶ τῷ Γ, οὐκ ἦν συλλογισμὸς τοῦ Α καὶ τοῦ Γ. οὐδ' εἰ τὸ Α τινὶ τῷ Β τῷ δὲ Γ μηδενί, οὐκ ἦν τοῦ Β καὶ τοῦ Γ συλλογισμός· ὥστε οὐκ ἀναιροῦνται αἱ προτάσεις. ὅταν δὲ τὸ ἀντικείμενον, ἀναιροῦνται. εἰ γὰρ τὸ Α παντὶ τῷ Β καὶ τὸ Β τῷ Γ, τὸ Α παντὶ τῷ Γ· ἀλλ' οὐδενὶ ὑπῆρχεν. πάλιν εἰ τὸ Α παντὶ τῷ Β τῷ δὲ Γ μηδενί, τὸ Β οὐδενὶ τῷ Γ· ἀλλὰ παντὶ ὑπῆρχεν. ὁμοίως δὲ δείκνυται καὶ εἰ μὴ καθόλου εἰσὶν αἱ προτάσεις. γίγνεται γὰρ τὸ ΑΓ καθόλου τε καὶ στερητικόν, θάτερον δ' ἐπὶ μέρους καὶ κατηγορικόν. εἰ μὲν οὖν τὸ Α παντὶ τῷ Β τὸ δὲ Β τινὶ τῷ Γ, τὸ Α τινὶ τῷ Γ συμβαίνει· ἀλλ' οὐδενὶ ὑπῆρχεν. πάλιν εἰ τὸ Α παντὶ τῷ Β τῷ δὲ Γ μηδενί, τὸ Β οὐδενὶ τῷ Γ· ἔκειτο δὲ τινί. εἰ δὲ τὸ Α τινὶ τῷ Β καὶ τὸ Β τινὶ τῷ Γ, οὐ γίγνεται συλλογισμός· οὐδ' εἰ τὸ Α τινὶ τῷ Β τῷ δὲ Γ μηδενί, οὐδ' οὕτως. ὥστ' ἐκείνως μὲν ἀναιροῦνται, οὕτω δ' οὐκ ἀναιροῦνται αἱ προτάσεις.

Φανερὸν οὖν διὰ τῶν εἰρημένων πῶς ἀντιστρεφομένου τοῦ συμπεράσματος ἐν ἑκάστῳ σχήματι γίγνεται συλλογισμός, καὶ πότ' ἐναντίως τῇ προ-

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[a] 28 b 1-4, 15—29 a 10.

not universal. For if A applies to no B, and B to some C, A will not apply to some C. And if A applies to no B, but to all C, B will apply to no C.

(2) in negative syllogisms.

Similarly too if the syllogism is negative. Let it be proved that A does not apply to some B, and let BC be affirmative and AC negative ; for this, as we have seen,[a] is how the syllogism is effected. Then when the contrary of the conclusion is assumed, there will be no syllogism. For if A applies to some B, and B to all C, there is no syllogism, as we have seen,[b] relating A and C. Also if A applies to some B, but to no C, there is no syllogism, as we have seen,[c] relating B and C. Thus the premisses are not refuted. But when the contradictory of the conclusion is assumed, they are refuted. For if A applies to all B, and B to C, A will apply to all C ; whereas before it applied to none. Again, if A applies to all B, but to no C, B will apply to no C ; whereas before it applied to all. There is a similar proof also if the premisses are not universal ; for AC becomes both universal and negative, and the other statement particular and affirmative. Thus if A applies to all B, and B to some C, it follows that A applies to some C ; whereas before it applied to none. Again, if A applies to all B, but to no C, B will apply to no C ; but the assumption was that it applies to some. If, however, A applies to some B, and B to some C, we get no syllogism ; nor do we if A applies to some B but to no C. Thus in the former case the premisses are refuted, but in the latter they are not.

Summary of the results obtained in chs. viii.-x.

Thus it is evident from the foregoing account (1) how syllogism is effected in each figure when the conclusion is converted, (2) in what circumstances the

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[b] 26 a 30-36. [c] 27 b 6-8.

61 a τάσει καὶ πότ' ἀντικειμένως, καὶ ὅτι ἐν μὲν τῷ
πρώτῳ σχήματι διὰ τοῦ μέσου καὶ τοῦ ἐσχάτου
γίγνονται οἱ συλλογισμοί, καὶ ἡ μὲν πρὸς τῷ
10 ἐλάττονι ἄκρῳ ἀεὶ διὰ τοῦ μέσου ἀναιρεῖται, ἡ δὲ
πρὸς τῷ μείζονι διὰ τοῦ ἐσχάτου· ἐν δὲ τῷ δευτέρῳ
διὰ τοῦ πρώτου καὶ τοῦ ἐσχάτου, καὶ ἡ μὲν πρὸς
τῷ ἐλάττονι ἄκρῳ ἀεὶ διὰ τοῦ πρώτου σχήματος,
ἡ δὲ πρὸς τῷ μείζονι διὰ τοῦ ἐσχάτου· ἐν δὲ τῷ
τρίτῳ διὰ τοῦ πρώτου καὶ διὰ τοῦ μέσου, καὶ ἡ
15 μὲν πρὸς τῷ μείζονι διὰ τοῦ πρώτου ἀεί, ἡ δὲ πρὸς
τῷ ἐλάττονι διὰ τοῦ μέσου.

XI. Τί μὲν οὖν ἐστι τὸ ἀντιστρέφειν καὶ πῶς ἐν ἑκάστῳ σχήματι καὶ τίς γίγνεται συλλογισμός, φανερόν.

Ὁ δὲ διὰ τοῦ ἀδυνάτου συλλογισμὸς δείκνυται
20 μὲν ὅταν ἡ ἀντίφασις τεθῇ τοῦ συμπεράσματος
καὶ προσληφθῇ ἄλλη πρότασις, γίγνεται δ'
ἐν ἅπασι τοῖς σχήμασιν· ὅμοιον γάρ ἐστι τῇ ἀντιστροφῇ,
πλὴν διαφέρει τοσοῦτον ὅτι ἀντιστρέφεται
μὲν γεγενημένου συλλογισμοῦ καὶ εἰλημμένων
ἀμφοῖν τῶν προτάσεων, ἀπάγεται δ' εἰς ἀδύνατον
25 οὐ προομολογηθέντος τοῦ ἀντικειμένου πρότερον,
ἀλλὰ φανεροῦ ὄντος ὅτι ἀληθές· οἱ δ' ὅροι ὁμοίως
ἔχουσιν ἐν ἀμφοῖν, καὶ ἡ αὐτὴ λῆψις ἀμφοτέρων.
οἷον εἰ τὸ Α τῷ Β παντὶ ὑπάρχει, μέσον δὲ τὸ Γ,
ἐὰν ὑποτεθῇ τὸ Α ἢ μὴ παντὶ ἢ μηδενὶ τῷ Β
ὑπάρχειν, τῷ δὲ Γ παντί, ὅπερ ἦν ἀληθές, ἀνάγκη
30 τὸ Γ τῷ Β ἢ μηδενὶ ἢ μὴ παντὶ ὑπάρχειν. τοῦτο
δ' ἀδύνατον, ὥστε ψεῦδος τὸ ὑποτεθέν· ἀληθὲς ἄρα
τὸ ἀντικείμενον. ὁμοίως δὲ καὶ ἐπὶ τῶν ἄλλων

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[a] *i.e.* the conclusion whose contradictory is assumed as a premiss for the process of reduction.

conclusion is the contrary and in what the contradictory of the original premiss, and (3) that in the first figure the syllogisms are effected by means of the middle and last figures, and the minor premiss is always refuted by the middle figure and the major by the last; in the second figure they are effected by the first and the last, and the minor premiss is always refuted by the first and the major by the last; and in the third figure the syllogisms are effected by the first and middle figures, and the major premiss is always refuted by the first and the minor by the middle figure.

XI. Thus it is evident what conversion is, and how it is effected in each figure, and what the resulting syllogism is.

Proof *per impossibile* compared with conversion.

A syllogism *per impossibile* is proved by positing the contradictory of the conclusion and assuming an additional premiss. It is effected in all three figures. It is similar to conversion, but differs from it to this extent: that whereas we convert after a syllogism has been effected and both premisses have been assumed, when we reduce *ad impossibile* the contradictory statement [a] is not first explicitly admitted, but is manifestly true. The terms, however, are similarly related in both, and the method of assumption is the same for both. *E.g.*, if A applies to all B, and C is the middle term, if we suppose that A does not apply to all or applies to none of B, but applies to all C, which is *ex hypothesi* true, C must apply to none or not apply to all of B. But this is impossible; therefore the supposition was false. Thus the opposite [b] is true. Similarly too in the other figures;

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[b] *i.e.* the contradictory.

61 a
σχημάτων· ὅσα γὰρ ἀντιστροφὴν δέχεται, καὶ τὸν
διὰ τοῦ ἀδυνάτου συλλογισμόν.

Τὰ μὲν οὖν ἄλλα προβλήματα πάντα δείκνυται
35 διὰ τοῦ ἀδυνάτου ἐν πᾶσι τοῖς σχήμασι, τὸ δὲ
καθόλου κατηγορικὸν ἐν μὲν τῷ μέσῳ καὶ τῷ τρίτῳ
δείκνυται, ἐν δὲ τῷ πρώτῳ οὐ δείκνυται. ὑποκείσθω
γὰρ τὸ Α τῷ Β μὴ παντὶ ἢ μηδενὶ ὑπάρχειν, καὶ
προσειλήφθω ἄλλη πρότασις ὁποτερωθενοῦν, εἴτε
40 τῷ Α παντὶ ὑπάρχειν τὸ Γ εἴτε τὸ Β παντὶ τῷ Δ·
οὕτω γὰρ ἂν εἴη τὸ πρῶτον σχῆμα. εἰ μὲν οὖν
ὑπόκειται μὴ παντὶ ὑπάρχειν τὸ Α τῷ Β, οὐ γίγνεται
61 b συλλογισμὸς ὁποτερωθενοῦν τῆς προτάσεως
λαμβανομένης, εἰ δὲ μηδενί, ὅταν μὲν ἡ ΒΔ προσληφθῇ,
συλλογισμὸς μὲν ἔσται τοῦ ψεύδους, οὐ
δείκνυται δὲ τὸ προκείμενον. εἰ γὰρ τὸ Α μηδενὶ
τῷ Β τὸ δὲ Β παντὶ τῷ Δ, τὸ Α οὐδενὶ τῷ Δ.
5 τοῦτο δ' ἔστω ἀδύνατον· ψεῦδος ἄρα τὸ μηδενὶ τῷ
Β τὸ Α ὑπάρχειν. ἀλλ' οὐκ εἰ τὸ μηδενὶ ψεῦδος τὸ
παντὶ ἀληθές. ἐὰν δ' ἡ ΓΑ προσληφθῇ, οὐ γίγνεται
συλλογισμός, οὐδ' ὅταν ὑποτεθῇ μὴ παντὶ τῷ Β
τὸ Α ὑπάρχειν· ὥστε φανερὸν ὅτι τὸ παντὶ ὑπάρχειν
10 οὐ δείκνυται ἐν τῷ πρώτῳ σχήματι διὰ τοῦ
ἀδυνάτου.

Τὸ δέ γε τινὶ καὶ τὸ μηδενὶ καὶ μὴ παντὶ δείκνυται.
ὑποκείσθω γὰρ τὸ Α μηδενὶ τῷ Β ὑπάρχειν,
τὸ δὲ Β εἰλήφθω παντὶ ἢ τινὶ τῷ Γ. οὐκοῦν
ἀνάγκη τὸ Α μηδενὶ ἢ μὴ παντὶ τῷ Γ ὑπάρχειν.
τοῦτο δ' ἀδύνατον (ἔστω γὰρ ἀληθὲς καὶ φανερὸν
15 ὅτι παντὶ ὑπάρχει τῷ Γ τὸ Α),[1] ὥστ' εἰ τοῦτο
ψεῦδος, ἀνάγκη τὸ Α τινὶ τῷ Β ὑπάρχειν. ἐὰν δὲ

for all examples which admit of conversion admit also of inference *per impossibile.*

Universal affirmative propositions cannot be proved by reduction in the first figure.

All other propositions are demonstrable *per impossibile* in all three figures, but the universal affirmative, though demonstrable in the middle and third figures, is not demonstrable in the first. Let us suppose that A does not apply to all, or applies to none, of B ; and let us also assume another premiss relating to either term, either that C applies to all A or that B applies to all D ; for in this way we shall have the first figure. Now if we have supposed that A does not apply to all B, we get no syllogism, to whichever of the two terms the assumed premiss refers ; but if we have supposed that A applies to no B, (1) when BD is further assumed, although we can argue to a false conclusion, the point to be proved is not demonstrated. For if A applies to no B, and B to all D, A will apply to no D. Let this be impossible. Then it is false that A applies to no B. But if 'A applies to no B' is false, it does not follow that 'A applies to all B' is true. (2) And if CA is further assumed, we get no syllogism, just as we get none when A is assumed not to apply to all B. Thus it is evident that the universal affirmative proposition is not demonstrable *per impossibile* in the first figure.

Proof of the particular affirmative,

The universal negative proposition, however, and the particular, whether affirmative or negative, are demonstrable. Let A be assumed to apply to no B, and let B be taken to apply to all or some of C. Then it necessarily follows that A applies to none, or does not apply at all, of C. But this is impossible (for let it be true and evident that A applies to all C) ; then if this is false, A must apply to some B.

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[1] ἔστω . . . τὸ A uncinis interpunxit Waitz.

61 b
πρὸς τῷ[1] Α ληφθῇ ἡ ἑτέρα πρότασις, οὐκ ἔσται
συλλογισμός· οὐδ' ὅταν τὸ ἐναντίον τῷ συμπεράσματι
ὑποτεθῇ, οἷον τὸ τινὶ μὴ ὑπάρχειν. φανερὸν
οὖν ὅτι τὸ ἀντικείμενον ὑποθετέον.

Πάλιν ὑποκείσθω τὸ Α τινὶ τῷ Β ὑπάρχειν,
20 εἰλήφθω δὲ τὸ Γ παντὶ τῷ Α. ἀνάγκη οὖν τὸ Γ
τινὶ τῷ Β ὑπάρχειν. τοῦτο δ' ἔστω ἀδύνατον, ὥστε
ψεῦδος τὸ ὑποτεθέν· εἰ δ' οὕτως, ἀληθὲς τὸ μηδενὶ
ὑπάρχειν. ὁμοίως δὲ καὶ εἰ στερητικὸν ἐλήφθη τὸ
ΓΑ. εἰ δ' ἡ πρὸς τῷ Β εἴληπται πρότασις, οὐκ
ἔσται συλλογισμός. ἐὰν δὲ τὸ ἐναντίον ὑποτεθῇ,
25 συλλογισμὸς μὲν ἔσται καὶ τὸ ἀδύνατον, οὐ δείκνυται
δὲ τὸ προτεθέν. ὑποκείσθω γὰρ παντὶ τῷ
Β τὸ Α ὑπάρχειν, καὶ τὸ Γ τῷ Α εἰλήφθω παντί.
οὐκοῦν ἀνάγκη τὸ Γ παντὶ τῷ Β ὑπάρχειν. τοῦτο
δ' ἀδύνατον, ὥστε ψεῦδος τὸ παντὶ τῷ Β τὸ Α
ὑπάρχειν. ἀλλ' οὔπω γε ἀναγκαῖον, εἰ μὴ παντί,
30 μηδενὶ ὑπάρχειν. ὁμοίως δὲ καὶ εἰ πρὸς τῷ Β
ληφθείη ἡ ἑτέρα πρότασις· συλλογισμὸς μὲν γὰρ
ἔσται καὶ τὸ ἀδύνατον, οὐκ ἀναιρεῖται δ' ἡ ὑπόθεσις,
ὥστε τὸ ἀντικείμενον ὑποθετέον.

Πρὸς δὲ τὸ μὴ παντὶ δεῖξαι ὑπάρχον τῷ Β τὸ Α
ὑποθετέον παντὶ ὑπάρχειν· εἰ γὰρ τὸ Α παντὶ τῷ Β
35 καὶ τὸ Γ παντὶ τῷ Α, τὸ Γ παντὶ τῷ Β· ὥστ' εἰ
τοῦτο ἀδύνατον, ψεῦδος τὸ ὑποτεθέν. ὁμοίως δὲ
καὶ εἰ πρὸς τῷ Β ἐλήφθη ἡ ἑτέρα πρότασις. καὶ
εἰ στερητικὸν ἦν τὸ ΓΑ ὡσαύτως· καὶ γὰρ οὕτω
γίγνεται συλλογισμός. ἐὰν δὲ πρὸς τῷ Β ᾖ τὸ
στερητικόν, οὐδὲν δείκνυται. ἐὰν δὲ μὴ παντὶ

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[1] τῷ BC, Waitz: τὸ A.

But if the other premiss assumed is attached to A, there will be no syllogism; nor when the contrary of the conclusion is assumed, viz., that A does not apply to some B. Thus it is evident that we must assume the contradictory of the conclusion.

Again, let it be supposed that A applies to some B, and let C be assumed to apply to all A. Then C must apply to some B. Let this be impossible, so that the supposition is false. But if this is so, it is true that A applies to no B. Similarly too if the assumed premiss CA had been negative. But if the premiss attached to B is assumed, there will be no syllogism. If, however, the contrary proposition is assumed, there will be a syllogism and an argument *per impossibile*, but the proposition is not demonstrable. Let it be supposed that A applies to all B, and let C be assumed to apply to all A. Then C must apply to all B. But this is impossible; and so it is false that A applies to all B. But it is not *ipso facto* necessary that if it does not apply to all, it applies to none. Similarly too supposing that the other premiss assumed is attached to B; for there will be a syllogism and an argument *per impossibile*, but the hypothesis is not refuted. Therefore we must assume the contradictory of the conclusion. of the universal negative,

To prove that A does not apply to all B we must suppose that it applies to all. For if A applies to all B, and C to all A, C will apply to all B; so that if this is impossible, the supposition is false. Similarly too if the other premiss had been attached to B. The same also holds if CA has been taken as negative; for in this way too we get a syllogism. But if the negative proposition is attached to B, there is no demonstration. If, however, we suppose, not that and of the particular negative.

61 b
40 ἀλλὰ τινὶ ὑπάρχειν ὑποτεθῇ, οὐ δείκνυται ὅτι οὐ
παντὶ ἀλλ᾽ ὅτι οὐδενί. εἰ γὰρ τὸ Α τινὶ τῷ Β τὸ
62 a δὲ Γ παντὶ τῷ Α, τινὶ τῷ Β τὸ Γ ὑπάρξει. εἰ οὖν
τοῦτ᾽ ἀδύνατον, ψεῦδος τὸ τινὶ ὑπάρχειν τῷ Β
τὸ Α, ὥστ᾽ ἀληθὲς τὸ μηδενί. τούτου δὲ δει-
χθέντος προσαναιρεῖται τὸ ἀληθές· τὸ γὰρ Α τῷ Β
τινὶ μὲν ὑπῆρχε, τινὶ δ᾽ οὐχ ὑπῆρχεν. ἔτι οὐ παρὰ
5 τὴν ὑπόθεσιν συμβαίνει τὸ ἀδύνατον· ψεῦδος γὰρ
ἂν εἴη, εἴπερ ἐξ ἀληθῶν μὴ ἔστι ψεῦδος συλλογίσα-
σθαι· νῦν δ᾽ ἐστὶν ἀληθές, ὑπάρχει γὰρ τὸ Α τινὶ
τῷ Β· ὥστ᾽ οὐχ ὑποθετέον τινὶ ὑπάρχειν, ἀλλὰ
παντί. ὁμοίως δὲ καὶ εἰ τινὶ μὴ ὑπάρχον τῷ Β τὸ
10 Α δεικνύοιμεν· εἰ γὰρ ταὐτὸ τὸ τινὶ μὴ ὑπάρχειν
καὶ μὴ παντὶ ὑπάρχειν, ἡ αὐτὴ ἀμφοῖν ἀπόδειξις.

Φανερὸν οὖν ὅτι οὐ τὸ ἐναντίον ἀλλὰ τὸ ἀντικεί-
μενον ὑποθετέον ἐν ἅπασι τοῖς συλλογισμοῖς· οὕτω
γὰρ τὸ ἀναγκαῖον ἔσται καὶ τὸ ἀξίωμα ἔνδοξον. εἰ
γὰρ κατὰ παντὸς ἢ φάσις ἢ ἀπόφασις, δειχθέντος
15 ὅτι οὐχ ἡ ἀπόφασις, ἀνάγκη τὴν κατάφασιν ἀλη-
θεύεσθαι· πάλιν εἰ μὴ τίθησιν ἀληθεύεσθαι τὴν
κατάφασιν, ἔνδοξον τὸ ἀξιῶσαι τὴν ἀπόφασιν. τὸ
δ᾽ ἐναντίον οὐδετέρως ἁρμόττει ἀξιοῦν· οὔτε γὰρ
ἀναγκαῖον, εἰ τὸ μηδενὶ ψεῦδος, τὸ παντὶ ἀληθές,
οὔτ᾽ ἔνδοξον ὡς εἰ θάτερον ψεῦδος, ὅτι θάτερον
ἀληθές.

20 XII. Φανερὸν οὖν ὅτι ἐν τῷ πρώτῳ σχήματι τὰ

A applies to all, but that it applies to some B, what is proved is not that it does not apply to all, but that it applies to none. For if A applies to some B, and C to all A, C will apply to some B. Then if this is impossible, it is false that A applies to some B, and therefore true that it applies to none. But by this proof the truth is refuted too; for the supposition was that A applies to some and also does not apply to some B. Moreover the impossibility does not result from the hypothesis; for if it did, the hypothesis would be false, since a false conclusion cannot be drawn from true premisses; but actually it is true, because A applies to some B. Thus we must suppose, not that A applies to some B, but that it applies to all. Similarly too if we should try to prove that A does not apply to some B; for since 'not to apply to some' and 'not to apply to all' are the same, the proof will be the same for both.

In all cases the contradictory of the conclusion must be assumed.

Thus it is evident that in all syllogisms we must suppose not the contrary but the contradictory of the conclusion; for in this way we shall secure logical necessity, and our claim will be generally admitted. For if either the assertion or the negation of a given predicate is true of every given subject, then when it is proved that the negation is not true, the affirmation must be true; and on the other hand if it is not maintained that the affirmation is true, the claim that the negation is true will be generally admitted. But the claim that the contrary statement is true meets neither requirement; for it is not a necessary consequence that if 'it applies to none' is false, 'it applies to all' is true, nor is it generally admitted that if the one is false the other is true.

Reduction in the

XII. Thus it is evident that in the first figure,

62 a μὲν ἄλλα προβλήματα πάντα δείκνυται διὰ τοῦ
ἀδυνάτου, τὸ δὲ καθόλου καταφατικὸν οὐ δείκνυται.
ἐν δὲ τῷ μέσῳ καὶ τῷ ἐσχάτῳ καὶ τοῦτο δείκνυται.
κείσθω γὰρ τὸ Α μὴ παντὶ τῷ Β ὑπάρχειν, εἰλήφθω
δὲ τῷ Γ παντὶ ὑπάρχειν τὸ Α. οὐκοῦν εἰ τῷ μὲν
25 Β μὴ παντὶ τῷ δὲ Γ παντί, οὐ παντὶ τῷ Β τὸ Γ.
τοῦτο δ' ἀδύνατον· ἔστω γὰρ φανερὸν ὅτι παντὶ
τῷ Β ὑπάρχει τὸ Γ, ὥστε ψεῦδος τὸ ὑποκείμενον.
ἀληθὲς ἄρα τὸ παντὶ ὑπάρχειν. ἐὰν δὲ τὸ ἐναντίον
ὑποτεθῇ, συλλογισμὸς μὲν ἔσται καὶ τὸ ἀδύνατον,
30 οὐ μὴν δείκνυται τὸ προτεθέν. εἰ γὰρ τὸ Α μηδενὶ
τῷ Β τῷ δὲ Γ παντί, οὐδενὶ τῷ Β τὸ Γ· τοῦτο δ'
ἀδύνατον, ὥστε ψεῦδος τὸ μηδενὶ ὑπάρχειν. ἀλλ'
οὐκ εἰ τοῦτο ψεῦδος τὸ παντὶ ἀληθές.

Ὅτε δὲ τινὶ τῷ Β ὑπάρχει τὸ Α, ὑποκείσθω τὸ Α
μηδενὶ τῷ Β ὑπάρχειν, τῷ δὲ Γ παντὶ ὑπαρχέτω.
35 ἀνάγκη οὖν τὸ Γ μηδενὶ τῷ Β· ὥστ' εἰ τοῦτ'
ἀδύνατον, ἀνάγκη τὸ Α τινὶ τῷ Β ὑπάρχειν. ἐὰν δ'
ὑποτεθῇ τινὶ μὴ ὑπάρχειν, ταὔτ' ἔσται[1] ἅπερ ἐπὶ
τοῦ πρώτου σχήματος.

Πάλιν ὑποκείσθω τὸ Α τινὶ τῷ Β ὑπάρχειν, τῷ
δὲ Γ μηδενὶ ὑπαρχέτω. ἀνάγκη οὖν τὸ Γ τινὶ
τῷ Β μὴ ὑπάρχειν. ἀλλὰ παντὶ ὑπῆρχεν, ὥστε
40 ψεῦδος τὸ ὑποτεθέν· οὐδενὶ ἄρα τῷ Β τὸ Α ὑπάρξει.

Ὅτε δ' οὐ παντὶ τὸ Α τῷ Β, ὑποκείσθω παντὶ
62 b ὑπάρχειν, τῷ δὲ Γ μηδενί. ἀνάγκη οὖν τὸ Γ
μηδενὶ τῷ Β ὑπάρχειν. τοῦτο δ' ἀδύνατον, ὥστ'
ἀληθὲς τὸ μὴ παντὶ ὑπάρχειν. φανερὸν οὖν ὅτι

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[1] ταὔτ' ἔσται Jenkinson: ταῦτ' ἔσται.

whereas all other propositions are demonstrable *per impossibile*, the universal affirmative is not so demonstrable. In the middle and last figures, however, even this is demonstrable. Let A be supposed not to apply to all B, and let it be assumed that A applies to all C. Then if it does not apply to all B, but applies to all C, C will not apply to all B. But this is impossible. For let it be evident that C applies to all B, so that the supposition is false. Then it is true that A applies to all B. But if we adopt the contrary hypothesis, although there will be a syllogism and an argument *per impossibile*, the proposition is not demonstrable. For if A applies to no B, but to all C, C will apply to no B. But this is impossible; and so it is false that A applies to no B. But it does not follow that if this is false, it is true that A applies to all B.

second figure.

Universal affirmative.

When A applies to some B, let it be supposed that A applies to no B, but let it apply to all C. Then C must apply to no B. Thus if this is impossible, A must apply to some B. If it is supposed not to apply to some, we shall have the same result as in the first figure.[a]

Particular affirmative.

Again, let A be supposed to apply to some B, but let it apply to no C. Then necessarily C does not apply to some B. But originally it applied to all, and so the supposition is false. Therefore A will apply to no B.

Universal negative.

When A does not apply to all B, let it be supposed to apply to all B, but to no C. Then C must apply to no B. But this is impossible; and so it is true that A does not apply to all B. Thus it is evident

Particular negative.

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[a] 61 b 39 ff.

62 b πάντες οἱ συλλογισμοὶ γίγνονται διὰ τοῦ μέσου
σχήματος.

5 XIII. Ὁμοίως δὲ καὶ διὰ τοῦ ἐσχάτου. κείσθω
γὰρ τὸ Α τινὶ τῷ Β μὴ ὑπάρχειν τὸ δὲ Γ παντί· τὸ
ἄρα Α τινὶ τῷ Γ οὐχ ὑπάρχει. εἰ οὖν τοῦτ' ἀδύνατον,
ψεῦδος τὸ τινὶ μὴ ὑπάρχειν, ὥστ' ἀληθὲς τὸ
παντί. ἐὰν δ' ὑποτεθῇ μηδενὶ ὑπάρχειν, συλλογισμὸς
10 μὲν ἔσται καὶ τὸ ἀδύνατον, οὐ δείκνυται δὲ
τὸ προτεθέν· ἐὰν γὰρ τὸ ἐναντίον ὑποτεθῇ, ταὔτ'
ἔσται[1] ἅπερ ἐπὶ τῶν πρότερον. ἀλλὰ πρὸς τὸ τινὶ
ὑπάρχειν αὕτη ληπτέα ἡ ὑπόθεσις. εἰ γὰρ τὸ Α
μηδενὶ τῷ Β τὸ δὲ Γ τινὶ τῷ Β, τὸ Α οὐ παντὶ τῷ
Γ. εἰ οὖν τοῦτο ψεῦδος, ἀληθὲς τὸ Α τινὶ τῷ Β
ὑπάρχειν.

15 Ὅτε δ' οὐδενὶ τῷ Β ὑπάρχει τὸ Α, ὑποκείσθω
τινὶ ὑπάρχειν, εἰλήφθω δὲ καὶ τὸ Γ παντὶ τῷ Β
ὑπάρχον. οὐκοῦν ἀνάγκη τῷ Γ τινὶ τὸ Α ὑπάρχειν.
ἀλλ' οὐδενὶ ὑπῆρχεν, ὥστε ψεῦδος τινὶ τῷ Β ὑπάρχειν
τὸ Α. ἐὰν δ' ὑποτεθῇ παντὶ τῷ Β ὑπάρχειν
τὸ Α, οὐ δείκνυται τὸ προτεθέν, ἀλλὰ πρὸς τὸ μὴ
20 παντὶ ὑπάρχειν αὕτη ληπτέα ἡ ὑπόθεσις. εἰ γὰρ
τὸ Α παντὶ τῷ Β καὶ τὸ Γ τινὶ τῷ Β, τὸ Α ὑπάρχει
τινὶ τῷ Γ· τοῦτο δὲ οὐκ ἦν, ὥστε ψεῦδος τὸ παντὶ
ὑπάρχειν· εἰ δ' οὕτως, ἀληθὲς τὸ μὴ παντί. ἐὰν δ'
ὑποτεθῇ τινὶ ὑπάρχειν, ταὔτ' ἔσται[1] ἃ καὶ ἐπὶ τῶν
προειρημένων.

25 Φανερὸν οὖν ὅτι ἐν ἅπασι τοῖς διὰ τοῦ ἀδυνάτου
συλλογισμοῖς τὸ ἀντικείμενον ὑποθετέον. δῆλον δὲ

[1] ταὔτ' ἔσται n, Jenkinson: ταῦτ' ἔσται.

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[a] *i.e.* that all types of proposition can be proved *per impossibile.*

that all the syllogisms can be effected by the second figure.[a]

Reduction in the third figure.

Affirmative propositions.

XIII. Similarly they can all be effected by means of the last figure. Let A be supposed not to apply to some B, but to apply to all C. Then A does not apply to some C. Then if this is impossible, it is false that A does not apply to some B, and so it is true that it applies to all. But if it is supposed to apply to none, although there will be a syllogism and an argument *per impossibile*, the proposition is not demonstrable; for if the contrary hypothesis is adopted, we shall have the same result as before.[b] This hypothesis must be chosen to prove that A applies to *some* B. For if A applies to no B, and C to some B, A will not apply to all C. Then if this is false, it is true that A applies to some B.

Negative propositions.

When A applies to no B, let it be supposed to apply to some; and let C also be assumed to apply to all B. Then A must apply to some C. But originally it applied to none; and so it is false that A applies to some B. If A is supposed to apply to all B, the proposition is not demonstrable; this hypothesis must be chosen to prove that A does not apply to all. For if A applies to all B, and C to some B, A applies to some C. But before this was not so; therefore it is false that A applies to all B; and if this is so, it is true that it does not apply to all. But if it is supposed to apply to some, the result will be the same as those which we have described above.[c]

Thus it is evident that in all syllogisms *per impossibile* it is the contradictory assumption that must

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[b] 62 a 28 ff.

[c] 61 b 39. The case is not treated separately under the second figure.

καὶ ὅτι ἐν τῷ μέσῳ σχήματι δείκνυταί πως τὸ καταφατικὸν καὶ ἐν τῷ ἐσχάτῳ τὸ καθόλου.

XIV. Διαφέρει ἡ εἰς τὸ ἀδύνατον ἀπόδειξις τῆς δεικτικῆς τῷ τιθέναι ὃ βούλεται ἀναιρεῖν ἀπάγουσα εἰς ὁμολογούμενον ψεῦδος· ἡ δὲ δεικτικὴ ἄρχεται ἐξ ὁμολογουμένων θέσεων.[1] λαμβάνουσι μὲν οὖν ἀμφότεραι δύο προτάσεις ὁμολογουμένας· ἀλλ' ἡ μὲν ἐξ ὧν ὁ συλλογισμός, ἡ δὲ μίαν μὲν τούτων μίαν δὲ τὴν ἀντίφασιν τοῦ συμπεράσματος. καὶ ἔνθα μὲν οὐκ ἀνάγκη γνώριμον εἶναι τὸ συμπέρασμα, οὐδὲ προϋπολαμβάνειν ὡς ἔστιν ἢ οὔ· ἔνθα δὲ ἀνάγκη ὡς οὐκ ἔστιν. διαφέρει δ' οὐδὲν φάσιν ἢ ἀπόφασιν εἶναι τὸ συμπέρασμα, ἀλλ' ὁμοίως ἔχει περὶ ἀμφοῖν.

Ἅπαν δὲ τὸ δεικτικῶς περαινόμενον καὶ διὰ τοῦ ἀδυνάτου δειχθήσεται, καὶ τὸ διὰ τοῦ ἀδυνάτου δεικτικῶς, διὰ τῶν αὐτῶν ὅρων.[2] ὅταν μὲν γὰρ ὁ συλλογισμὸς ἐν τῷ πρώτῳ σχήματι γένηται, τὸ ἀληθὲς ἔσται ἐν τῷ μέσῳ ἢ τῷ ἐσχάτῳ, τὸ μὲν στερητικὸν ἐν τῷ μέσῳ τὸ δὲ κατηγορικὸν ἐν τῷ ἐσχάτῳ· ὅταν δ' ἐν τῷ μέσῳ ᾖ ὁ συλλογισμός, τὸ ἀληθὲς ἐν τῷ πρώτῳ ἐπὶ πάντων τῶν προβλημάτων· ὅταν δ' ἐν τῷ ἐσχάτῳ ὁ συλλογισμός, τὸ ἀληθὲς ἐν τῷ πρώτῳ καὶ τῷ μέσῳ, τὰ μὲν καταφατικὰ ἐν τῷ πρώτῳ τὰ δὲ στερητικὰ ἐν τῷ μέσῳ.

Ἔστω γὰρ δεδειγμένον τὸ Α μηδενὶ ἢ μὴ παντὶ τῷ Β διὰ τοῦ πρώτου σχήματος. οὐκοῦν ἡ μὲν ὑπόθεσις ἦν τινὶ τῷ Β ὑπάρχειν τὸ Α, τὸ δὲ Γ

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[1] θέσεων ἀληθῶν A.

[2] ὅρων. ABC: ὅρων, οὐκ ἐν τοῖς αὐτοῖς δὲ σχήμασιν uolgo.

be made. It is also clear that in a sense the affirmative proposition is demonstrable in the middle figure and the universal in the last figure.[a]

Proof *per impossibile* compared with ostensive proof.

XIV. Proof *per impossibile* differs from ostensive proof in that the former posits that which it intends to refute by reducing it to an admitted fallacy, whereas the latter proceeds from admitted positions. Both indeed assume two admitted premisses; but whereas the latter assumes those from which the syllogism proceeds, the former assumes one of these and one which is the contradictory of the conclusion; and in the latter the conclusion need not be known, nor need it be presupposed to be true or not; but in the former it must be presupposed not to be true. It makes no difference, however, whether the conclusion is affirmative or negative; the procedure is the same in both cases.

Every proposition which is established ostensively can also be proved *per impossibile*, and *vice versa*, by means of the same terms. For when the syllogism[b] is effected in the first figure, the truth[c] will appear in the middle or last figure: the negative in the middle and the affirmative in the last. When the syllogism is in the middle figure, the truth will appear in the first figure with respect to all propositions. When the syllogism is in the last figure, the truth will appear in the first or the middle: affirmative in the first, negative in the middle figure.

Reduction by Barbara direct proof by Baroco.

For example, let it be proved by the first figure that A applies to none, or does not apply to all, of B. Then the hypothesis was that A applies to some B,

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[a] 62 a 23-37, b 5-9, 14-18.

[b] *i.e.* the reduction *ad impossibile.*

[c] *i.e.* the ostensive syllogism.

ἐλαμβάνετο τῷ μὲν Α παντὶ ὑπάρχειν τῷ δὲ Β οὐδενί· οὕτω γὰρ ἐγίγνετο ὁ συλλογισμὸς καὶ τὸ ἀδύνατον. τοῦτο δὲ τὸ μέσον σχῆμα, εἰ τὸ Γ τῷ μὲν Α παντὶ τῷ δὲ Β μηδενὶ ὑπάρχει· καὶ φανερὸν ἐκ τούτων ὅτι οὐδενὶ τῷ Β ὑπάρχει τὸ Α.

Ὁμοίως δὲ καὶ εἰ μὴ παντὶ δέδεικται ὑπάρχον. ἡ μὲν γὰρ ὑπόθεσίς ἐστι παντὶ ὑπάρχειν, τὸ δὲ Γ ἐλαμβάνετο τῷ μὲν Α παντὶ τῷ δὲ Β οὐ παντί. καὶ εἰ στερητικὸν λαμβάνοιτο τὸ ΓΑ ὡσαύτως· καὶ γὰρ οὕτω γίγνεται τὸ μέσον σχῆμα.

Πάλιν δεδείχθω τινὶ ὑπάρχον τῷ Β τὸ Α. ἡ μὲν οὖν ὑπόθεσις μηδενὶ ὑπάρχειν, τὸ δὲ Β ἐλαμβάνετο παντὶ τῷ Γ ὑπάρχειν καὶ τὸ Α ἢ παντὶ ἢ τινὶ τῷ Γ· οὕτω γὰρ ἔσται τὸ ἀδύνατον. τοῦτο δὲ τὸ ἔσχατον σχῆμα, εἰ τὸ Α καὶ τὸ Β παντὶ τῷ Γ· καὶ φανερὸν ἐκ τούτων ὅτι ἀνάγκη τὸ Α τινὶ τῷ Β ὑπάρχειν. ὁμοίως δὲ καὶ εἰ τινὶ τῷ Γ ληφθείη ὑπάρχον τὸ Β ἢ τὸ Α.

Πάλιν ἐν τῷ μέσῳ σχήματι δεδείχθω τὸ Α παντὶ τῷ Β ὑπάρχον. οὐκοῦν ἡ μὲν ὑπόθεσις ἦν μὴ παντὶ τῷ Β τὸ Α ὑπάρχειν, εἴληπται δὲ τὸ Α παντὶ τῷ Γ καὶ τὸ Γ παντὶ τῷ Β· οὕτω γὰρ ἔσται τὸ ἀδύνατον. τοῦτο δὲ τὸ πρῶτον σχῆμα, τὸ Α παντὶ τῷ Γ καὶ τὸ Γ παντὶ τῷ Β. ὁμοίως δὲ καὶ εἰ τινὶ δέδεικται ὑπάρχον· ἡ μὲν γὰρ ὑπόθεσις ἦν μηδενὶ τῷ Β τὸ Α ὑπάρχειν, εἴληπται δὲ τὸ Α παντὶ τῷ Γ καὶ τὸ Γ τινὶ τῷ Β. εἰ δὲ στερητικὸς ὁ συλλογισμός, ἡ μὲν ὑπόθεσις τὸ Α τινὶ τῷ Β ὑπάρχειν, εἴληπται δὲ τὸ Α μηδενὶ τῷ Γ καὶ τὸ Γ παντὶ τῷ Β, ὥστε γίγνεται τὸ πρῶτον σχῆμα. καὶ εἰ μὴ καθόλου ὁ συλλογισμός, ἀλλὰ τὸ Α τινὶ τῷ Β δέδεικται μὴ ὑπάρχειν, ὡσαύτως. ὑπόθεσις μὲν

and C was assumed to apply to all A but to no B; this was how the syllogism and the argument *per impossibile* were effected. But this is the middle figure, if C applies to all A but to no B; and it is evident from these premisses that A applies to no B.

Similarly too if it has been proved not to apply to all. The hypothesis is that it applies to all, and it was assumed that C applies to all A but not to all B. The same also holds supposing that CA is taken as negative; for in this case too we get the middle figure. **Ferio-Cesare.**

Again, let it be proved that A applies to some B. Then the hypothesis is that it applies to none, and B was assumed to apply to all C and A to all or some of C; for it is in this way that the proof *per impossibile* will result. This is the last figure, if A and B apply to all C; and it is evident from these premisses that A must apply to some B. Similarly too supposing that B or A is taken to apply to some C. **Celarent-Darapti or Disamis.**

Again in the second figure let it be proved that A applies to all B. Then the hypothesis was that A does not apply to all B, and the assumptions were that A applies to all C and C to all B; for it is in this way that the proof *per impossibile* will result. This is the first figure, when A applies to all C and C to all B. Similarly too if A has been proved to apply to some B. The hypothesis was that A applies to no B, and the assumptions were that A applies to all C and C to some B. If the syllogism is negative, the hypothesis was that A applies to some B, and the assumptions were that A applies to no C and C to all B, so that we get the first figure. The same also holds if the syllogism is not universal, but it has been proved that A does not apply to some B; for the **Baroco-Barbara.**

63 a γὰρ παντὶ τῷ Β τὸ Α ὑπάρχειν, εἴληπται δὲ τὸ Α
μηδενὶ τῷ Γ καὶ τὸ Γ τινὶ τῷ Β· οὕτω γὰρ τὸ
πρῶτον σχῆμα.

40 Πάλιν ἐν τῷ τρίτῳ σχήματι δεδείχθω τὸ Α παντὶ
τῷ Β ὑπάρχειν. οὐκοῦν ἡ μὲν ὑπόθεσις ἦν μὴ
63 b παντὶ τῷ Β τὸ Α ὑπάρχειν, εἴληπται δὲ τὸ Γ παντὶ
τῷ Β καὶ τὸ Α παντὶ τῷ Γ· οὕτω γὰρ ἔσται τὸ
ἀδύνατον. τοῦτο δὲ τὸ πρῶτον σχῆμα. ὡσαύτως
δὲ καὶ εἰ ἐπί τινος ἡ ἀπόδειξις· ἡ μὲν γὰρ ὑπόθεσις
5 μηδενὶ τῷ Β τὸ Α ὑπάρχειν, εἴληπται δὲ τὸ Γ τινὶ
τῷ Β καὶ τὸ Α παντὶ τῷ Γ. εἰ δὲ στερητικὸς ὁ
συλλογισμός, ὑπόθεσις μὲν τὸ Α τινὶ τῷ Β ὑπάρχειν,
εἴληπται δὲ τὸ Γ τῷ μὲν Α μηδενὶ τῷ δὲ
Β παντί· τοῦτο δὲ τὸ μέσον σχῆμα. ὁμοίως δὲ καὶ
εἰ μὴ καθόλου ἡ ἀπόδειξις. ὑπόθεσις μὲν γὰρ
10 ἔσται παντὶ τῷ Β τὸ Α ὑπάρχειν, εἴληπται δὲ τὸ
Γ τῷ μὲν Α μηδενὶ τῷ δὲ Β τινί· τοῦτο δὲ τὸ
μέσον σχῆμα.

Φανερὸν οὖν ὅτι διὰ τῶν αὐτῶν ὅρων καὶ δεικτικῶς
ἔστι δεικνύναι τῶν προβλημάτων ἕκαστον
[καὶ διὰ τοῦ ἀδυνάτου].[1] ὁμοίως δ' ἔσται καὶ
15 δεικτικῶν ὄντων τῶν συλλογισμῶν εἰς ἀδύνατον
ἀπάγειν ἐν τοῖς εἰλημμένοις ὅροις, ὅταν ἡ ἀντικειμένη
πρότασις τῷ συμπεράσματι ληφθῇ. γίγνονται
γὰρ οἱ αὐτοὶ συλλογισμοὶ τοῖς διὰ τῆς
ἀντιστροφῆς, ὥστ' εὐθὺς ἔχομεν καὶ τὰ σχήματα
δι' ὧν ἕκαστον ἔσται. δῆλον οὖν ὅτι πᾶν πρόβλημα
20 δείκνυται κατ' ἀμφοτέρους τοὺς τρόπους, διά τε
τοῦ ἀδυνάτου καὶ δεικτικῶς, καὶ οὐκ ἐνδέχεται
χωρίζεσθαι τὸν ἕτερον.

XV. Ἐν ποίῳ δὲ σχήματι ἔστιν ἐξ ἀντικειμένων

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[1] καὶ . . . ἀδυνάτου om. AC, Waitz.

hypothesis was that A applies to all B, and the assumptions were that A applies to no C, and C to some B; for in this way we get the first figure.

Again in the third figure let it be proved that A applies to all B. Then the hypothesis was that A does not apply to all B, and the assumptions were that C applies to all B and A to all C; for it is in this way that the proof *per impossibile* will result; and this is the first figure. The same also holds if the demonstration proves a particular conclusion, for then the hypothesis was that A applies to no B, and the assumptions were that C applies to some B and A to all C. If the syllogism is negative, the hypothesis was that A applies to some B, and the assumptions were that C applies to no A but to all B. This is the middle figure. Similarly too if the demonstration proves a particular negative conclusion; the hypothesis will be that A applies to all B, and the assumptions were that C applies to no A but to some B. This is the middle figure.

Thus it is evident that each of these propositions can also be proved ostensively by means of the same terms. Similarly too if the syllogisms are ostensive it will be possible to employ reduction *ad impossibile* by using the terms already taken, if we assume the premiss which contradicts the conclusion. For we get the same syllogisms as we obtained by conversion; and so we have at once the very figures by which each one will be effected. It is clear, then, that every proposition can be proved in both ways, both *per impossibile* and ostensively; and that neither method can be separated from the other.

Conclusions from

XV. In which figures we can and cannot draw a

63 b προτάσεων συλλογίσασθαι καὶ ἐν ποίῳ οὐκ ἔστιν,
ὧδ' ἔσται φανερόν. λέγω δ' ἀντικειμένας εἶναι
25 προτάσεις κατὰ μὲν τὴν λέξιν τέτταρας, οἷον τὸ
παντὶ τῷ οὐδενί, καὶ τὸ παντὶ τῷ οὐ παντί, καὶ τὸ
τινὶ τῷ οὐδενί, καὶ τὸ τινὶ τῷ οὐ τινί, κατ' ἀλήθειαν
δὲ τρεῖς· τὸ γὰρ τινὶ τῷ οὐ τινὶ κατὰ τὴν λέξιν
ἀντίκειται μόνον. τούτων δ' ἐναντίας μὲν τὰς
καθόλου, τὸ παντὶ τῷ μηδενὶ ὑπάρχειν (οἷον τὸ
30 πᾶσαν ἐπιστήμην εἶναι σπουδαίαν τῷ μηδεμίαν
εἶναι σπουδαίαν), τὰς δ' ἄλλας ἀντικειμένας.

Ἐν μὲν οὖν τῷ πρώτῳ σχήματι οὐκ ἔστιν ἐξ
ἀντικειμένων προτάσεων συλλογισμὸς οὔτε καταφατικὸς
οὔτε ἀποφατικός, καταφατικὸς μὲν ὅτι
ἀμφοτέρας δεῖ καταφατικὰς εἶναι τὰς προτάσεις,
35 αἱ δ' ἀντικείμεναι φάσις καὶ ἀπόφασις, στερητικὸς
δὲ ὅτι αἱ μὲν ἀντικείμεναι τὸ αὐτὸ τοῦ αὐτοῦ
κατηγοροῦσι καὶ ἀπαρνοῦνται, τὸ δ' ἐν τῷ πρώτῳ
μέσον οὐ λέγεται κατ' ἀμφοῖν, ἀλλ' ἐκείνου μὲν
ἄλλο ἀπαρνεῖται, αὐτὸ δὲ ἄλλου κατηγορεῖται·
αὗται δ' οὐκ ἀντίκεινται.

40 Ἐν δὲ τῷ μέσῳ σχήματι καὶ ἐκ τῶν ἀντικειμένων
καὶ ἐκ τῶν ἐναντίων ἐνδέχεται γίγνεσθαι
64 a συλλογισμόν. ἔστω γὰρ ἀγαθὸν μὲν ἐφ' οὗ Α,
ἐπιστήμη δὲ ἐφ' οὗ Β καὶ Γ. εἰ δὴ πᾶσαν ἐπιστήμην
σπουδαίαν ἔλαβε καὶ μηδεμίαν, τὸ Α τῷ Β
παντὶ ὑπάρχει καὶ τῷ Γ οὐδενί, ὥστε τὸ Β τῷ Γ
οὐδενί· οὐδεμία ἄρα ἐπιστήμη ἐπιστήμη ἐστίν.
5 ὁμοίως δὲ καὶ εἰ πᾶσαν λαβὼν σπουδαίαν τὴν
ἰατρικὴν μὴ σπουδαίαν ἔλαβε· τῷ μὲν γὰρ Β παντὶ
τὸ Α τῷ δὲ Γ οὐδενί, ὥστε ἡ τὶς ἐπιστήμη οὐκ

conclusion from opposite premisses will be evident from the following analysis.—I hold that there are four pairs of premisses which exhibit a verbal opposition, viz., ' applies to all ' and ' applies to none '; ' applies to all ' and ' does not apply to all ' ; ' applies to some ' and ' applies to none ' ; and ' applies to some ' and ' does not apply to some ' ; but only three of these are really opposed, because the opposition of ' applies to some ' and ' does not apply to some ' is only verbal. Of these the universal premisses ' applies to all ' and ' applies to none ' (*e.g.*, ' all knowledge is good ' and ' no knowledge is good ') are contrary ; the other two pairs are contradictory.

opposite premisses.

In the first figure, then, a syllogism from opposite premisses is impossible, whether it be affirmative or negative. An affirmative syllogism is impossible because to produce it both the premisses must be affirmative, and a pair of opposite premisses is composed of an affirmation and its negation. A negative syllogism is impossible because opposite premisses affirm and deny the same predicate of the same subject, and in the first figure the middle term is not predicated of both the others, but something else is denied of it while it is itself predicated of something else ; and the premisses thus formed are not opposed.

First figure.

In the middle figure a syllogism may be obtained both from contradictory and from contrary premisses. For let A be ' good,' and let B and C be ' science.' Then if we assume that all science is good, and then that no science is good, A applies to all B and to no C, so that B applies to no C. Therefore no science is science. Similarly too if after assuming that all science is good we then assume that medicine is not good ; for A applies to all B but to no C, so that the

Second figure.

64 a

ἔσται ἐπιστήμη. καὶ εἰ τῷ μὲν Γ παντὶ τὸ Α τῷ δὲ Β μηδενί, ἔστι δὲ τὸ μὲν Β ἐπιστήμη τὸ δὲ Γ ἰατρικὴ τὸ δὲ Α ὑπόληψις· οὐδεμίαν γὰρ ἐπιστήμην ὑπόληψιν λαβὼν εἴληφε τινὰ ἐπιστήμην εἶναι ὑπόληψιν. διαφέρει δὲ τοῦ πάλαι τῷ ἐπὶ τῶν ὅρων ἀντιστρέφεσθαι· πρότερον μὲν γὰρ πρὸς τῷ Β, νῦν δὲ πρὸς τῷ Γ τὸ καταφατικόν. καὶ ἂν ᾖ δὲ μὴ καθόλου ἡ ἑτέρα πρότασις ὡσαύτως· ἀεὶ γὰρ τὸ μέσον ἐστὶν ὃ ἀπὸ θατέρου μὲν ἀποφατικῶς λέγεται κατὰ θατέρου δὲ καταφατικῶς.

Ὥστ' ἐνδέχεται τἀντικείμενα περαίνεσθαι, πλὴν οὐκ ἀεὶ οὐδὲ πάντως, ἀλλ' ἐὰν οὕτως ἔχῃ τὰ ὑπὸ τὸ μέσον ὥστ' ἢ ταὐτὰ εἶναι ἢ ὅλον πρὸς μέρος. ἄλλως δ' ἀδύνατον· οὐ γὰρ ἔσονται οὐδαμῶς αἱ προτάσεις οὔτ' ἐναντίαι οὔτ' ἀντικείμεναι.

Ἐν δὲ τῷ τρίτῳ σχήματι καταφατικὸς μὲν συλλογισμὸς οὐδέποτ' ἔσται ἐξ ἀντικειμένων προτάσεων διὰ τὴν εἰρημένην αἰτίαν καὶ ἐπὶ τοῦ πρώτου σχήματος, ἀποφατικὸς δ' ἔσται, καὶ καθόλου καὶ μὴ καθόλου τῶν ὅρων ὄντων. ἔστω γὰρ ἐπιστήμη ἐφ' οὗ τὸ Β καὶ Γ, ἰατρικὴ δ' ἐφ' οὗ Α. εἰ οὖν λάβοι πᾶσαν ἰατρικὴν ἐπιστήμην καὶ μηδεμίαν ἰατρικὴν ἐπιστήμην, τὸ Β παντὶ τῷ Α εἴληφε καὶ τὸ Γ οὐδενί, ὥστ' ἔσται τις ἐπιστήμη οὐκ ἐπιστήμη. ὁμοίως δὲ καὶ ἂν μὴ καθόλου ληφθῇ ἡ ΒΑ[1] πρότασις· εἰ γάρ ἐστι τὶς ἰατρικὴ ἐπιστήμη καὶ πάλιν μηδεμία ἰατρικὴ ἐπιστήμη, συμβαίνει ἐπιστήμην τινὰ μὴ εἶναι ἐπιστήμην. εἰσὶ δὲ καθόλου μὲν τῶν ὅρων λαμβανομένων ἐναντίαι αἱ προτάσεις, ἐὰν δ' ἐν μέρει ἅτερος ἀντικείμεναι.

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[1] BA ABC, Waitz: AB uolgo.

particular science of medicine will not be science. Also if A applies to all C but to no B, and B is science, C medicine and A belief; for after assuming that no science is belief, we have now assumed that a particular science is belief. This differs from the former example in being converted in respect of its terms; for in the former example the affirmative proposition was attached to B, but now it is attached to C. The same will still be true if the other premiss is not universal; for the middle is always that which is stated negatively of one term and affirmatively of the other.

Thus it is possible to draw an inference from opposite premisses; not always, however, nor under all conditions, but only if the relation of the terms included under the middle is that of identity or of whole to part. No other relation is possible; otherwise the premisses will be in no sense either contrary or contradictory.

Third figure.

In the third figure there can never be an affirmative syllogism from opposite premisses, for the reason stated in the case of the first figure [a]; but there can be a negative syllogism, whether the terms are universal or not. Let B and C stand for science, and A for medicine. Supposing then that we assume that all medicine is science, and that no medicine is science; then we have assumed that B applies to all A, and C to no A, and therefore some science will not be science. Similarly too if the premiss BA which we assume is not universal; for if some medicine is science, and again no medicine is science, it follows that some science is not science. The premisses are contrary if the terms assumed are universal, but contradictory if one term is particular.

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[a] 63 b 33.

64 a Δεῖ δὲ κατανοεῖν ὅτι ἐνδέχεται μὲν οὕτω τὰ
ἀντικείμενα λαμβάνειν, ὥσπερ εἴπομεν πᾶσαν
35 ἐπιστήμην σπουδαίαν εἶναι καὶ πάλιν μηδεμίαν
ἢ τινὰ μὴ σπουδαίαν (ὅπερ οὐκ εἴωθε λανθάνειν),
ἔστι δὲ δι' ἄλλων ἐρωτημάτων συλλογίσασθαι θάτερον,
ἢ ὡς ἐν Τοπικοῖς ἐλέχθη λαβεῖν.

Ἐπεὶ δὲ τῶν καταφάσεων αἱ ἀντιθέσεις τρεῖς,
ἑξαχῶς συμβαίνει τἀντικείμενα λαμβάνειν, ἢ παντὶ
40 καὶ μηδενί, ἢ παντὶ καὶ μὴ παντί, ἢ τινὶ καὶ μηδενί,
64 b καὶ τοῦτο ἀντιστρέψαι ἐπὶ τῶν ὅρων, οἷον τὸ Α
παντὶ τῷ Β τῷ δὲ Γ μηδενί, ἢ τῷ Γ παντὶ τῷ δὲ
Β μηδενί, ἢ τῷ μὲν παντὶ τῷ δὲ μὴ παντί, καὶ
πάλιν τοῦτο ἀντιστρέψαι κατὰ τοὺς ὅρους. ὁμοίως
δὲ καὶ ἐπὶ τοῦ τρίτου σχήματος· ὥστε φανερὸν
5 ὁσαχῶς τε καὶ ἐν ποίοις σχήμασιν ἐνδέχεται διὰ
τῶν ἀντικειμένων προτάσεων γενέσθαι συλλογισμόν.

Φανερὸν δὲ καὶ ὅτι ἐκ ψευδῶν μὲν ἔστιν ἀληθὲς
συλλογίσασθαι, καθάπερ εἴρηται πρότερον, ἐκ δὲ
τῶν ἀντικειμένων οὐκ ἔστιν· ἀεὶ γὰρ ἐναντίος ὁ
10 συλλογισμὸς γίγνεται τῷ πράγματι· οἷον εἰ ἔστιν
ἀγαθόν, μὴ εἶναι ἀγαθόν, ἢ εἰ ζῷον, μὴ ζῷον, διὰ
τὸ ἐξ ἀντιφάσεως εἶναι τὸν συλλογισμὸν καὶ τοὺς
ὑποκειμένους ὅρους ἢ τοὺς αὐτοὺς εἶναι ἢ τὸν μὲν
ὅλον τὸν δὲ μέρος. δῆλον δὲ καὶ ὅτι ἐν τοῖς παραλογισμοῖς
οὐδὲν κωλύει γίγνεσθαι τῆς ὑποθέσεως
15 ἀντίφασιν, οἷον εἰ ἔστι περιττόν, μὴ εἶναι περιττόν·
ἐκ γὰρ τῶν ἀντικειμένων προτάσεων ἐναντίος ἦν ὁ

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[a] *Topics*, VIII. i.

[b] Chs. ii.-iv. *supra*.

It should be observed that while we may assume the opposite propositions in the way described above, as we said that all science is good, and again that no science is good, or that some science is not good (in this case the contradiction is not usually overlooked), it is also possible to establish one of the propositions by means of further questions, or to assume it as we have described in the *Topics*.[a]

Possible combinations of opposite premisses.

Since there are three forms of opposition to an affirmative statement, it follows that there are six ways of assuming opposite propositions. The predicate can be said to apply to all and to none, or to all and not to all, or to some and to none; and each of these pairs can be converted in respect of its terms: *e.g.*, it can be said that A applies to all B but to no C, or to all C but to no B, or to all of the former but not to all of the latter; and this again can be converted in respect of its terms. Similarly too in the third figure. Thus it is evident in how many ways and in which figures a syllogism can be effected by means of opposite premisses.

Opposite premisses cannot yield a true conclusion.

It is evident also that whereas we can draw a true inference from false premisses, as we have explained above,[b] we cannot do so from opposite premisses; for the resulting conclusion is always contrary to the fact: *e.g.*, if a thing is good, the inference is that it is not good, or if it is an animal, that it is not an animal. This is because the syllogism proceeds from contradictory premisses, and the terms laid down are either the same or related as whole and part. It is clear also that in fallacious reasoning there is no reason why the result should not be the contradiction of the original hypothesis; *e.g.*, if the subject is odd, that it is not odd. For we have seen that the conclusion

64 b συλλογισμός· ἐὰν οὖν λάβῃ τοιαύτας, ἔσται τῆς ὑποθέσεως ἀντίφασις.

Δεῖ δὲ κατανοεῖν ὅτι οὕτω μὲν οὐκ ἔστιν ἐναντία συμπεράνασθαι ἐξ ἑνὸς συλλογισμοῦ, ὥστ' εἶναι τὸ συμπέρασμα τὸ μὴ ὂν ἀγαθὸν ἀγαθὸν ἢ ἄλλο τι 20 τοιοῦτον, ἐὰν μὴ εὐθὺς ἡ πρότασις τοιαύτη ληφθῇ, οἷον πᾶν ζῷον λευκὸν εἶναι καὶ μὴ λευκόν, τὸν δ' ἄνθρωπον ζῷον· ἀλλ' ἢ προσλαβεῖν δεῖ τὴν ἀντίφασιν (οἷον ὅτι πᾶσα ἐπιστήμη ὑπόληψις,[1] εἶτα λαβεῖν ὅτι ἡ ἰατρικὴ ἐπιστήμη μέν ἐστιν οὐδεμία δ' ὑπόληψις, 25 ὥσπερ οἱ ἔλεγχοι γίγνονται), ἢ ἐκ δύο συλλογισμῶν· ὥστε δ' εἶναι ἐναντία κατ' ἀλήθειαν τὰ εἰλημμένα οὐκ ἔστιν ἄλλον τρόπον ἢ τοῦτον, καθάπερ εἴρηται πρότερον.

XVI. Τὸ δ' ἐν ἀρχῇ αἰτεῖσθαι καὶ λαμβάνειν ἔστι μέν, ὡς ἐν γένει λαβεῖν, ἐν τῷ μὴ ἀποδεικνύναι 30 τὸ προκείμενον, τοῦτο δὲ ἐπισυμβαίνει πολλαχῶς· καὶ γὰρ εἰ ὅλως μὴ συλλογίζεται, καὶ εἰ δι' ἀγνωστοτέρων ἢ ὁμοίως ἀγνώστων, καὶ εἰ διὰ τῶν ὑστέρων τὸ πρότερον· ἡ γὰρ ἀπόδειξις ἐκ πιστοτέρων τε καὶ προτέρων ἐστίν. τούτων μὲν οὖν οὐδέν ἐστι τὸ αἰτεῖσθαι τὸ ἐξ ἀρχῆς· ἀλλ' ἐπεὶ τὰ 35 μὲν δι' αὑτῶν πέφυκε γνωρίζεσθαι τὰ δὲ δι' ἄλλων (αἱ μὲν γὰρ ἀρχαὶ δι' αὑτῶν, τὰ δ' ὑπὸ τὰς ἀρχὰς δι' ἄλλων), ὅταν μὴ τὸ[2] δι' αὑτοῦ γνωστὸν δι' αὑτοῦ

[1] ὑπόληψις B^1n^1, Waitz: ὑπόληψις καὶ οὐχ ὑπόληψις uolgo.
[2] μὴ τὸ] τὸ μὴ nf, corr. cu.

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[a] *i.e.* can produce an (affirmative) self-contradictory conclusion. This has been shown to be impossible in the first figure (63 b 33) and in the third (64 a 20), while the second figure cannot give an affirmative conclusion.

resulting from opposite premisses is contrary to fact; therefore if we assume premisses of this kind, we shall obtain a contradiction of the original hypothesis.

A contradiction cannot be inferred from two premisses unless it is inherent in one of them.

It should be observed that it is not possible to infer contrary conclusions from a single syllogism so that the conclusion states that that which is not good is good, or any other similar contradiction (unless the contradictory form goes back to the original premisses, *e.g.*, 'every animal is white and not white' and then 'man is an animal'); we must either assume the contradictory statement as well, *e.g.*, assume that all science is belief, and then that medicine is a science, but that no medicine is belief (as in the process of refutation); or we must draw our conclusions from two syllogisms. There is no other way, as we have said above, in which the assumptions can be truly contrary.[a]

Petitio principii.

XVI. Begging or assuming the point at issue consists (to take the expression in its widest sense) in failing to demonstrate the required proposition. But there are several other ways in which this may happen: for example, if the argument has not taken syllogistic form at all, or if the premisses are less well known or no better known than the point to be proved, or if the prior is proved by the posterior; for demonstration proceeds from premisses which are surer and prior. None of these procedures is begging the point at issue.

Now some things are naturally knowable through themselves, and others through something else (for principles are knowable through themselves, while the examples which fall under the principles are knowable through something else); and when any one tries to prove by means of itself that which is not

τις ἐπιχειρῇ δεικνύναι, τότ' αἰτεῖται τὸ ἐξ ἀρχῆς. τοῦτο δ' ἔστι μὲν οὕτω ποιεῖν ὥστ' εὐθὺς ἀξιῶσαι τὸ προκείμενον, ἐνδέχεται δὲ καὶ μεταβάντας ἐπ' ἄλλα ἄττα τῶν πεφυκότων δι' ἐκείνου δείκνυσθαι διὰ τούτων ἀποδεικνύναι τὸ ἐξ ἀρχῆς, οἷον εἰ τὸ Α δεικνύοιτο διὰ τοῦ Β τὸ δὲ Β διὰ τοῦ Γ, τὸ δὲ Γ πεφυκὸς εἴη δείκνυσθαι διὰ τοῦ Α· συμβαίνει γὰρ αὐτὸ δι' αὐτοῦ τὸ Α δεικνύναι τοὺς οὕτω συλλογιζομένους. ὅπερ ποιοῦσιν οἱ τὰς παραλλήλους οἰόμενοι γράφειν· λανθάνουσι γὰρ αὐτοὶ ἑαυτοὺς τοιαῦτα λαμβάνοντες ἃ οὐχ οἷόν τε ἀποδεῖξαι μὴ οὐσῶν τῶν παραλλήλων· ὥστε συμβαίνει τοῖς οὕτω συλλογιζομένοις ἕκαστον εἶναι λέγειν, εἰ ἔστιν ἕκαστον· οὕτω δὲ ἅπαν ἔσται δι' αὐτοῦ γνωστόν· ὅπερ ἀδύνατον.

Εἰ οὖν τις ἀδήλου ὄντος ὅτι τὸ Α ὑπάρχει τῷ Γ, ὁμοίως δὲ καὶ ὅτι τῷ Β, αἰτοῖτο τῷ Β ὑπάρχειν τὸ Α, οὔπω δῆλον εἰ τὸ ἐν ἀρχῇ αἰτεῖται, ἀλλ' ὅτι οὐκ ἀποδείκνυσι δῆλον· οὐ γὰρ ἀρχὴ ἀποδείξεως τὸ ὁμοίως ἄδηλον. εἰ μέντοι τὸ Β πρὸς τὸ Γ οὕτως ἔχει ὥστε ταὐτὸν εἶναι, ἢ δῆλον ὅτι ἀντιστρέφουσιν, ἢ ὑπάρχει θάτερον θατέρῳ, τὸ ἐν ἀρχῇ αἰτεῖται. καὶ γὰρ ἂν ὅτι τῷ Β τὸ Α ὑπάρχει δι' ἐκείνων δεικνύοι, εἰ ἀντιστρέφοι· νῦν δὲ τοῦτο κωλύει, ἀλλ' οὐχ ὁ τρόπος· εἰ δὲ τοῦτο ποιοῖ, τὸ εἰρημένον ἂν ποιοῖ καὶ ἀντιστρέφοι διὰ[1] τριῶν. ὡσαύτως δὲ κἂν

[1] διὰ] ὡς διὰ C^2.

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[a] *e.g.*, that the interior opposite angles are equal, which depends upon the parallelism of the lines.

[b] *Sc.* than the point to be proved.

[c] *i.e.* a premiss; *cf.* 53 a 3.

[d] *Sc.* as genus to species.

[e] Assuming that B and C are not convertible.

knowable by means of itself, then he is begging the point at issue. This may be done by directly postulating the proposition which is to be proved; but we may also have recourse to some other propositions of a sort which are of their very nature proved by means of our proposition, and prove the point at issue by means of them: *e.g.*, supposing that A is proved by B and B by C, and it is the nature of C to be proved by A; for if anyone argues in this way it follows that he is proving A by means of itself. This is exactly what those persons do who think that they are drawing parallel lines; for they do not realize that they are making assumptions[a] which cannot be proved unless the parallel lines exist. Thus it follows that those who argue in this way are saying that any given thing is so, if it is so. But on this principle everything will be self-evident; which is impossible.

Petitio principii when (1) the major premiss,

Thus if it is uncertain whether A applies to C, and equally uncertain whether it applies to B, supposing that anyone claims that A applies to B, it is not yet clear whether he is begging the point at issue, but it is clear that he is not demonstrating it; for that which is no less uncertain[b] is not the starting-point of demonstration.[c] If, however, the relation of B to C is such that they are identical, or that they are clearly convertible, or that one applies to the other,[d] then he is begging the point at issue; for he could also prove by these premisses, if he were to convert them, that A applies to B. As it is, the conditions[e] prevent this, although the method of argument does not. But if he were to do this, he would be doing what we have described,[f] and proving reciprocally by three propositions. So too supposing that he

[f] 65 a 1-4.

εἰ τὸ Β τῷ Γ λαμβάνοι ὑπάρχειν, ὁμοίως ἄδηλον ὂν καὶ εἰ τὸ Α, οὔπω τὸ ἐξ ἀρχῆς αἰτεῖται, ἀλλ' οὐκ ἀποδείκνυσιν. ἐὰν δὲ ταὐτὸν ᾖ τὸ Α καὶ Β ἢ τῷ ἀντιστρέφειν ἢ τῷ ἕπεσθαι τῷ Β τὸ Α, τὸ ἐξ ἀρχῆς αἰτεῖται διὰ τὴν αὐτὴν αἰτίαν· τὸ γὰρ ἐξ ἀρχῆς τί δύναται εἴρηται ἡμῖν, ὅτι τὸ δι' αὐτοῦ δεικνύναι τὸ μὴ δι' αὐτοῦ δῆλον.

Εἰ οὖν ἐστὶ τὸ ἐν ἀρχῇ αἰτεῖσθαι τὸ δι' αὐτοῦ δεικνύναι τὸ μὴ δι' αὐτοῦ δῆλον, τοῦτο δ' ἐστὶ τὸ μὴ δεικνύναι ὅταν ὁμοίως ἀδήλων ὄντων τοῦ δεικνυμένου καὶ δι' οὗ δείκνυται ἢ τῷ ταὐτὰ τῷ αὐτῷ ἢ τῷ ταὐτὸν τοῖς αὐτοῖς ὑπάρχειν, ἐν μὲν τῷ μέσῳ σχήματι καὶ τρίτῳ ἀμφοτέρως ἂν ἐνδέχοιτο τὸ ἐν ἀρχῇ αἰτεῖσθαι, ἐν δὲ κατηγορικῷ συλλογισμῷ ἔν τε τῷ τρίτῳ καὶ τῷ πρώτῳ· ὅταν δ' ἀποφατικῶς, ὅταν τὰ αὐτὰ ἀπὸ τοῦ αὐτοῦ, καὶ οὐχ ὁμοίως ἀμφότεραι αἱ προτάσεις (ὡσαύτως δὲ καὶ ἐν τῷ μέσῳ), διὰ τὸ μὴ ἀντιστρέφειν τοὺς ὅρους κατὰ τοὺς ἀποφατικοὺς συλλογισμούς.

Ἔστι δὲ τὸ ἐν ἀρχῇ αἰτεῖσθαι ἐν μὲν ταῖς ἀποδείξεσι τὰ κατ' ἀλήθειαν οὕτως ἔχοντα, ἐν δὲ τοῖς διαλεκτικοῖς τὰ κατὰ δόξαν.

XVII. Τὸ δὲ μὴ παρὰ τοῦτο συμβαίνειν τὸ ψεῦδος, ὃ πολλάκις ἐν τοῖς λόγοις εἰώθαμεν λέγειν,

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[a] 64 b 31-38.

[b] *i.e.* either in the minor or in the major premiss.

[c] Because the second figure does not permit affirmative syllogisms.

[d] *Sc.* 'or the same predicate is denied of identical subjects.'

[e] The terms of a negative premiss are not convertible, and so the convertible terms must be those of the affirmative

should assume that B applies to C, although this is no less uncertain than whether A does; he is not yet begging the point at issue, but he is not demonstrating it. If, however, A and B are identical, either because they are convertible or because A is a consequent of B, he is begging the point at issue, for the same reason as before; for we have explained above[a] that to beg the point at issue consists in proving by means of itself that which is not self-evident.

(2) the minor premiss is no better known than the conclusion.

If, then, to beg the point at issue is to prove by means of itself that which is not self-evident; *i.e.*, failure to prove, when the proposition to be proved and that by which it is proved are equally uncertain, either because identical predicates apply to the same subject or because the same predicate applies to identical subjects: then in the middle and third figures the point at issue can be begged in either way[b]; in affirmative syllogisms, however, it occurs only in the third and first figures.[c] But when the syllogism is negative we have *petitio principii* when identical predicates are denied of the same subject,[d] and it does not occur in both premisses indifferently (and the same holds good of the middle figure), since the terms are not convertible in negative syllogisms.[e]

How *petitio principii* occurs in the several figures.

In demonstrations the point which is begged represents the true relation of the terms; in dialectical arguments it represents the relation which is commonly accepted.

XVII. The objection 'this is not the cause of the fallacy,' which we are accustomed to use frequently

'False Cause': an objection

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premiss; therefore the *petitio principii* must be in the negative premiss. This whole section is involved and inaccurate. In point of fact *petitio principii* can occur (1) in Barbara (major and minor) and Celarent (major); (2) in Camestres (minor); (3) in Darapti and Felapton (major).

65 a
40 πρῶτον μέν ἐστιν ἐν τοῖς εἰς τὸ ἀδύνατον συλ-
65 b λογισμοῖς, ὅταν πρὸς ἀντίφασιν ᾖ τούτου ὃ ἐδείκνυτο τῇ εἰς τὸ ἀδύνατον. οὔτε γὰρ μὴ ἀντιφήσας ἐρεῖ τὸ οὐ παρὰ τοῦτο, ἀλλ' ὅτι ψεῦδός τι ἐτέθη τῶν πρότερον, οὔτ' ἐν τῇ δεικνυούσῃ· οὐ γὰρ τίθησιν ὃ ἀντίφησιν.[1]

Ἔτι δ' ὅταν ἀναιρεθῇ τι δεικτικῶς διὰ τῶν ΑΒΓ,
5 οὐκ ἔστιν εἰπεῖν ὡς οὐ παρὰ τὸ κείμενον γεγένηται ὁ συλλογισμός. τὸ γὰρ μὴ παρὰ τοῦτο γίγνεσθαι τότε λέγομεν ὅταν ἀναιρεθέντος τούτου μηδὲν ἧττον περαίνηται ὁ συλλογισμός, ὅπερ οὐκ ἔστιν ἐν τοῖς δεικτικοῖς· ἀναιρεθείσης γὰρ τῆς θέσεως οὐδ' ὁ πρὸς ταύτην ἔσται συλλογισμός. φανερὸν οὖν ὅτι
10 ἐν τοῖς εἰς τὸ ἀδύνατον λέγεται τὸ μὴ παρὰ τοῦτο, καὶ ὅταν οὕτως ἔχῃ πρὸς τὸ ἀδύνατον ἡ ἐξ ἀρχῆς ὑπόθεσις ὥστε καὶ οὔσης καὶ μὴ οὔσης ταύτης οὐδὲν ἧττον συμβαίνειν τὸ ἀδύνατον.

Ὁ μὲν οὖν φανερώτατος τρόπος ἐστὶ τοῦ μὴ παρὰ τὴν θέσιν εἶναι τὸ ψεῦδος ὅταν ἀπὸ τῆς ὑποθέσεως
15 ἀσύναπτος ᾖ ἀπὸ τῶν μέσων πρὸς τὸ ἀδύνατον ὁ συλλογισμός, ὅπερ εἴρηται καὶ ἐν Τοπικοῖς. τὸ γὰρ τὸ ἀναίτιον ὡς αἴτιον τιθέναι τοῦτό ἐστιν, οἷον εἰ βουλόμενος δεῖξαι ὅτι ἀσύμμετρος ἡ διάμετρος ἐπιχειροίη τὸν Ζήνωνος λόγον δεικνύναι, ὡς οὐκ ἔστι κινεῖσθαι, καὶ εἰς τοῦτο ἀπάγοι τὸ ἀδύνατον· οὐδα-
20 μῶς γὰρ οὐδαμῇ συνεχές ἐστι τὸ ψεῦδος τῇ φάσει

[1] ὃ ἀντίφησιν A²B²Cu¹ : ὃ ἀντίφασιν B¹ : ὃ ἀντίφησεν u² : ὃ ἀντιφήσων A¹ : ἀντίφασιν n : τὴν ἀντίφασιν mf.

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[a] *Soph. El.* 167 b 21 ff.

[b] *i.e.* it is illegitimate to try to refute a hypothesis by reduction when the impossible conclusion does not depend upon that hypothesis.

[c] *Cf. Physics*, VI. ix. 239 b 10 ff.

in our arguments, is met with primarily in syllogisms involving reduction *ad impossibile* ; it is there used to contradict the proposition which was being proved by reduction *ad impossibile.* For unless our opponent contradicts this he will not say ' this is not the cause of the fallacy ' ; he will protest that there was a false assumption in the earlier stages of the argument. Nor will he use the objection in an ostensive proof, since in this one does not posit something which contradicts the conclusion.

raised against proofs *per impossibile.*

It is not used against ostensive proofs.

Further, when something is refuted ostensively by means of the terms A, B and C, it cannot be maintained that the syllogism does not depend upon the assumption ; because we only say that something is not the cause when even if it is refuted the syllogism is concluded none the less. This is not possible in ostensive syllogisms ; for when the hypothesis is refuted the syllogism which is related to it will no longer hold good. Thus it is evident that the objection ' this is not the cause ' is used in reduction *ad impossibile* when the original hypothesis is so related to the impossible conclusion that the latter results whether the hypothesis is valid or not.

The most obvious form in which the hypothesis is not the cause of the fallacy is when the syllogism proceeds from the middle terms to the impossible conclusion independently of the hypothesis, as we have described in the *Topics*.[a] This is to posit as a cause that which is no cause [b] ; as if someone wishing to prove that the diagonal of a square is incommensurable were to try to prove Zeno's argument that motion is impossible,[c] and were to use reduction *ad impossibile* to this end ; for there is no connexion in any way at all between the fallacy and the original

The impossible conclusion may be (1) quite unconnected with the hypothesis,

65 b τῇ ἐξ ἀρχῆς. ἄλλος δὲ τρόπος εἰ συνεχὲς μὲν εἴη τὸ ἀδύνατον τῇ ὑποθέσει, μὴ μέντοι δι' ἐκείνην συμβαίνοι. τοῦτο γὰρ ἐγχωρεῖ γενέσθαι καὶ ἐπὶ τὸ ἄνω καὶ ἐπὶ τὸ κάτω λαμβάνοντι τὸ συνεχές, οἷον εἰ τὸ Α τῷ Β κεῖται ὑπάρχον τὸ δὲ Β τῷ Γ τὸ δὲ Γ τῷ Δ, τοῦτο δὲ εἴη ψεῦδος, τὸ Β τῷ Δ ὑπάρχειν· εἰ γὰρ ἀφαιρεθέντος τοῦ Α μηδὲν ἧττον ὑπάρχοι τὸ Β τῷ Γ καὶ τὸ Γ τῷ Δ, οὐκ ἂν εἴη τὸ ψεῦδος διὰ τὴν ἐξ ἀρχῆς ὑπόθεσιν. ἢ πάλιν εἴ τις ἐπὶ τὸ ἄνω λαμβάνοι τὸ συνεχές, οἷον εἰ τὸ μὲν Α τῷ Β τῷ δὲ Α τὸ Ε καὶ τῷ Ε τὸ Ζ, ψεῦδος δ' εἴη τὸ ὑπάρχειν τῷ Α τὸ Ζ· καὶ γὰρ οὕτως οὐδὲν ἂν ἧττον εἴη τὸ ἀδύνατον ἀναιρεθείσης τῆς ἐξ ἀρχῆς ὑποθέσεως.

Ἀλλὰ δεῖ πρὸς τοὺς ἐξ ἀρχῆς ὅρους συνάπτειν τὸ ἀδύνατον· οὕτω γὰρ ἔσται διὰ τὴν ὑπόθεσιν, οἷον ἐπὶ μὲν τὸ κάτω λαμβάνοντι τὸ συνεχὲς πρὸς τὸν κατηγορούμενον τῶν ὅρων· εἰ γὰρ ἀδύνατον τὸ Α τῷ Δ ὑπάρχειν, ἀφαιρεθέντος τοῦ Α οὐκέτι ἔσται τὸ ψεῦδος. ἐπὶ δὲ τὸ ἄνω, καθ' οὗ κατηγορεῖται· εἰ γὰρ τῷ Β μὴ ἐγχωρεῖ τὸ Ζ ὑπάρχειν, ἀφαιρεθέντος τοῦ Β οὐκέτι ἔσται τὸ ἀδύνατον. ὁμοίως δὲ καὶ στερητικῶν τῶν συλλογισμῶν ὄντων.

66 a Φανερὸν οὖν ὅτι τοῦ ἀδυνάτου μὴ πρὸς τοὺς ἐξ ἀρχῆς ὅρους ὄντος οὐ παρὰ τὴν θέσιν συμβαίνει τὸ ψεῦδος. ἢ οὐδ' οὕτως ἀεὶ διὰ τὴν ὑπόθεσιν ἔσται τὸ ψεῦδος· καὶ γὰρ εἰ μὴ τῷ Β ἀλλὰ τῷ Κ ἐτέθη τὸ Α ὑπάρχειν, τὸ δὲ Κ τῷ Γ καὶ τοῦτο τῷ Δ, καὶ οὕτω μένει τὸ ἀδύνατον· ὁμοίως δὲ καὶ ἐπὶ τὸ ἄνω

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[a] i.e. working towards or away from the most universal term.

[b] *Sc.* in the hypothesis.

[c] i.e. that A applies to D.

or (2) connected with it, but not dependent upon it.

assertion. We have another form when the impossible conclusion is connected with the hypothesis, but does not follow because of it. This may occur whether one regards the connexion in the upward or in the downward direction,[a] *e.g.*, if A is assumed to apply to B and B to C and C to D, and it is false that B applies to D ; for if when A is eliminated B none the less applies to C and C to D, then the fallacy cannot be due to the original hypothesis. Or again, if one regards the connexion in the upward direction, *e.g.*, if A applies to B and E to A and F to E, and it is false that F applies to A ; for in this case too the impossible conclusion will follow none the less if the original hypothesis is eliminated.

To avoid the objection of Fals Cause the conclusion must proceed from the original premisses.

The impossible conclusion must be connected with the original terms, for then it will be due to the hypothesis. *E.g.*, if we are regarding the connexion in the downward direction, the impossible conclusion must be connected to the term which is the predicate.[b] For if it is impossible that A should apply to D, when A is eliminated the fallacy will no longer exist. In the upward direction the connexion should be to the term of which the other is predicated.[b] For if F cannot apply to B, when B is eliminated the fallacy will no longer exist. Similarly too if the syllogisms are negative.

Even so the objection may sometimes be made,

Thus it is evident that if the impossible conclusion is not related to the original terms, the fallacy is not due to the hypothesis. Indeed even when the conclusion is so related, the fallacy will not always be due to the hypothesis ; for supposing that A had been assumed to apply not to B but to K, and K to C and C to D ; even so the impossible conclusion[c] remains. Similarly too if one takes the terms in the

λαμβάνοντι τοὺς ὅρους, ὥστ᾿ ἐπεὶ καὶ ὄντος καὶ μὴ ὄντος τούτου συμβαίνει τὸ ἀδύνατον, οὐκ ἂν εἴη παρὰ τὴν θέσιν. ἢ τὸ μὴ ὄντος τούτου μηδὲν ἧττον γίγνεσθαι τὸ ψεῦδος οὐχ οὕτω ληπτέον ὥστ᾿ ἄλλου τιθεμένου συμβαίνειν τὸ ἀδύνατον, ἀλλ᾿ ὅταν ἀφαιρεθέντος τούτου διὰ τῶν λοιπῶν προτάσεων ταὐτὸ περαίνηται ἀδύνατον, ἐπεὶ ταὐτό γε ψεῦδος συμβαίνειν διὰ πλειόνων ὑποθέσεων οὐδὲν ἴσως ἄτοπον, οἷον τὰς παραλλήλους συμπίπτειν καὶ εἰ μείζων ἐστὶν ἡ ἐντὸς τῆς ἐκτὸς καὶ εἰ τὸ τρίγωνον ἔχει πλείους ὀρθὰς δυεῖν.

XVIII. Ὁ δὲ ψευδὴς λόγος γίγνεται παρὰ τὸ πρῶτον ψεῦδος. ἢ γὰρ ἐκ τῶν δύο προτάσεων ἢ ἐκ πλειόνων πᾶς ἐστὶ συλλογισμός. εἰ μὲν οὖν ἐκ τῶν δύο, τούτων ἀνάγκη τὴν ἑτέραν ἢ καὶ ἀμφοτέρας εἶναι ψευδεῖς· ἐξ ἀληθῶν γὰρ οὐκ ἦν ψευδὴς συλλογισμός. εἰ δ᾿ ἐκ πλειόνων, οἷον τὸ μὲν Γ διὰ τῶν ΑΒ, ταῦτα δὲ διὰ τῶν ΔΕΖΗ, τούτων τι ἔσται τῶν ἐπάνω ψεῦδος, καὶ παρὰ τοῦτο ὁ λόγος· τὸ γὰρ Α καὶ Β δι᾿ ἐκείνων περαίνονται· ὥστε παρ᾿ ἐκείνων τι συμβαίνει τὸ συμπέρασμα καὶ τὸ ψεῦδος.

XIX. Πρὸς δὲ τὸ μὴ κατασυλλογίζεσθαι παρατηρητέον, ὅταν ἄνευ τῶν συμπερασμάτων ἐρωτᾷ

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[a] 53 b 11-25.

upward direction ; so that since the impossible conclusion follows whether the original assumption holds or not, it cannot follow from the hypothesis. Probably the fact that when the assumption is eliminated the fallacy results none the less should be taken to mean, not that the impossible conclusion follows when some other assumption is made, but that when the original assumption is eliminated the same impossible conclusion results through the remaining premisses ; since presumably it is by no means incongruous that the same fallacy should follow from several hypotheses, *e.g.*, that the impossible conclusion 'parallel lines meet' should follow both on the hypothesis that the interior is greater than the exterior angle and on the hypothesis that the sum of the angles of a triangle is greater than two right angles.

since the same fallacy may follow from more than one hypothesis.

XVIII. Falsity in an argument rests on the first false statement which the argument contains. Every syllogism is drawn from two or more premisses. Thus if the false argument is drawn from two premisses, one or both of these must be false ; for we have seen [a] that a false conclusion cannot be drawn from true premisses ; but if it is drawn from more than two, *e.g.*, if C is proved by means of A and B and these by means of D, E, F and G, one of these higher propositions must be false, and must be the cause of the ⟨falsity of the⟩ argument ; for A and B are inferred by means of those propositions. Thus it is from some one of them that the conclusion, *i.e.* the fallacy, results.

Falsity in arguments.

XIX. If we are to avoid having a syllogism constructed against us when our opponent, without disclosing the conclusions, asks us to admit the grounds

Counter-syllogisms : how to escape,

66 a τὸν λόγον, ὅπως μὴ δοθῇ δὶς ταὐτὸν ἐν ταῖς προτάσεσιν, ἐπειδήπερ ἴσμεν ὅτι ἄνευ μέσου συλλογισμὸς οὐ γίγνεται, μέσον δ' ἐστὶ τὸ πλεονάκις λεγόμενον. ὡς δὲ δεῖ πρὸς ἕκαστον συμπέρασμα
30 τηρεῖν τὸ μέσον, φανερὸν ἐκ τοῦ εἰδέναι ποῖον ἐν ἑκάστῳ σχήματι δείκνυται. τοῦτο δ' ἡμᾶς οὐ λήσεται διὰ τὸ εἰδέναι πῶς ὑπέχομεν τὸν λόγον.

Χρὴ δ' ὅπερ φυλάττεσθαι παραγγέλλομεν ἀποκρινομένους, αὐτοὺς ἐπιχειροῦντας πειρᾶσθαι λαν-
35 θάνειν. τοῦτο δ' ἔσται πρῶτον, ἐὰν τὰ συμπεράσματα μὴ προσυλλογίζωνται ἀλλ' εἰλημμένων τῶν ἀναγκαίων ἄδηλα ᾖ, ἔτι δὲ ἂν μὴ τὰ σύνεγγυς ἐρωτᾷ ἀλλ' ὅτι μάλιστα ἄμεσα.[1] οἷον ἔστω δέον συμπεραίνεσθαι τὸ Α κατὰ τοῦ Ζ· μέσα ΒΓΔΕ. δεῖ οὖν ἐρωτᾶν εἰ τὸ Α τῷ Β, καὶ πάλιν μὴ εἰ τὸ
40 Β τῷ Γ, ἀλλ' εἰ τὸ Δ τῷ Ε, κἄπειτα εἰ τὸ Β τῷ Γ,
66 b καὶ οὕτω τὰ λοιπά. κἂν δι' ἑνὸς μέσου γίγνηται ὁ συλλογισμός, ἀπὸ τοῦ μέσου ἄρχεσθαι· μάλιστα γὰρ ἂν οὕτω λανθάνοι τὸν ἀποκρινόμενον.

XX. Ἐπεὶ δ' ἔχομεν πότε καὶ πῶς ἐχόντων τῶν
5 ὅρων γίγνεται συλλογισμός, φανερὸν καὶ πότ' ἔσται καὶ πότ' οὐκ ἔσται ἔλεγχος. πάντων μὲν γὰρ συγχωρουμένων ἢ ἐναλλὰξ τιθεμένων τῶν ἀποκρίσεων (οἷον τῆς μὲν ἀποφατικῆς τῆς δὲ κατα-

[1] ἄμεσα B¹C²: τὰ μέσα uolgo.

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[a] *Cf.* 40 b 29—41 a 20.

of his argument, we must be careful that we do not grant him the same term twice over in the premisses; since we know that without a middle term there cannot be a syllogism,[a] and the middle term is that which occurs more than once. In what way we should watch for the middle term with reference to each conclusion is evident from our knowledge of what form the proof takes in each figure; this will not escape us, because we know how we are maintaining the argument.

and how to employ them.

This same procedure against which we have been warning students when they are on the defensive in argument they should try to adopt unobtrusively when they assume the offensive. This will be possible, firstly, if they avoid drawing the conclusions of preliminary syllogisms and leave them obscure, after making the necessary assumptions; and secondly, if the points asked to be conceded are not closely associated, but are as far as possible unconnected by middle terms. *E.g.*, let it be required to establish that A is predicated of F, the middle terms being B, C, D and E. Then we should ask whether A applies to B; and next, not whether B applies to C, but whether D applies to E, and then whether B applies to C; and so on with the remaining terms. If the syllogism is effected by means of one middle term, we should begin with the middle; for in this way the effect of the concession will be least apparent.

Refutation.

XX. Since we comprehend when and with what combinations of terms a syllogism results, it is evident also when refutation will or will not be possible. Refutation may take place whether all the propositions are conceded or the answers alternate (*i.e.* one being negative and one affirmative); for we have

66 b φατικῆς) ἐγχωρεῖ γίγνεσθαι ἔλεγχον· ἦν γὰρ συλλογισμὸς καὶ οὕτω καὶ ἐκείνως ἐχόντων τῶν ὅρων· ὥστ' εἰ τὸ κείμενον εἴη[1] ἐναντίον τῷ συμπεράσματι, ἀνάγκη γίγνεσθαι ἔλεγχον· ὁ γὰρ ἔλεγχος ἀντιφάσεως συλλογισμός. εἰ δὲ μηδὲν συγχωροῖτο, ἀδύνατον γίγνεσθαι ἔλεγχον· οὐ γὰρ ἦν συλλογισμὸς πάντων τῶν ὅρων στερητικῶν ὄντων, ὥστ' οὐδ' ἔλεγχος· εἰ μὲν γὰρ ἔλεγχος, ἀνάγκη συλλογισμὸν εἶναι, συλλογισμοῦ δ' ὄντος οὐκ ἀνάγκη ἔλεγχον. ὡσαύτως δὲ καὶ εἰ μηδὲν τεθείη κατὰ τὴν ἀπόκρισιν ἐν ὅλῳ· ὁ γὰρ αὐτὸς ἔσται διορισμὸς ἐλέγχου καὶ συλλογισμοῦ.

XXI. Συμβαίνει δ' ἐνίοτε, καθάπερ ἐν τῇ θέσει τῶν ὅρων ἀπατώμεθα, καὶ κατὰ τὴν ὑπόληψιν γίγνεσθαι τὴν ἀπάτην, οἷον εἰ ἐνδέχεται τὸ αὐτὸ πλείοσι πρώτοις[2] ὑπάρχειν, καὶ τὸ μὲν λεληθέναι τινὰ καὶ οἴεσθαι μηδενὶ ὑπάρχειν, τὸ δὲ εἰδέναι. ἔστω γὰρ τὸ Α τῷ Β καὶ τῷ Γ καθ' αὑτὰ ὑπάρχον, καὶ ταῦτα παντὶ τῷ Δ ὡσαύτως· εἰ δὴ τῷ μὲν Β τὸ Α παντὶ οἴεται ὑπάρχειν καὶ τοῦτο τῷ Δ, τῷ δὲ Γ τὸ Α μηδενὶ καὶ τοῦτο τῷ Δ παντί, τοῦ αὐτοῦ κατὰ ταὐτὸν ἕξει ἐπιστήμην καὶ ἄγνοιαν. πάλιν εἴ τις ἀπατηθείη περὶ τὰ ἐκ τῆς αὐτῆς συστοιχίας, οἷον εἰ τὸ Α ὑπάρχει τῷ Β, τοῦτο δὲ τῷ Γ καὶ τὸ Γ τῷ Δ, ὑπολαμβάνοι δὲ τὸ Α παντὶ τῷ Β ὑπάρχειν καὶ πάλιν μηδενὶ τῷ Γ· ἅμα γὰρ εἴσεταί τε καὶ οὐχ ὑπολήψεται ὑπάρχειν. ἆρ' οὖν οὐδὲν ἄλλο ἀξιοῖ ἐκ

[1] εἴη mn^2: ᾖ uolgo.

[2] πρώτοις] πρώτως B^{2}C^{2}m.

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[a] *i.e.* a syllogism may have both premisses affirmative or one affirmative and one negative.

[b] 41 b 6.

seen that a syllogism results both with the former and with the latter arrangement of terms.[a] Hence if the admitted proposition is contrary to the conclusion, refutation must result, since refutation is a syllogism which proves the contradictory conclusion. If, however, nothing is conceded, refutation is impossible; for we have seen [b] that when all the terms [c] are negative there is no syllogism, and therefore no refutation either. For refutation necessarily implies a syllogism, but a syllogism does not necessarily imply refutation. So too if the answer posits no universal relation; for the same definition will apply to refutation as to syllogism.[d]

How error arises in judgements.

XXI. Just as we are sometimes mistaken in setting out the terms, so it sometimes happens that a mistake occurs in our thought about them; *e.g.*, if the same predicate may apply to more than one subject immediately, and someone, knowing one subject, forgets the other and thinks that the predicate applies to none of it. For example, let A be applicable to B and C *per se*, and let B and C apply in the same way to all D. Then if he thinks that A applies to all B and B to D, but that A applies to no C and C applies to all D, he will have knowledge and ignorance of the same thing in relation to the same thing. So again supposing that someone should be mistaken about terms in the same series,[e] *e.g.*, if A applies to B, B to C and C to D, and should suppose that A applies to all B but on the contrary to no C; he will at the same time know that it applies and not think that it does so. Does he then actually profess, as a result

Two apparent examples of contrary thought.

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[c] *i.e.* both premisses.

[d] 41 b 6.

[e] *i.e.* terms contained in the same genus and subordinate one to another. *Cf.* Bonitz, *Index Arist.* 736 b 33.

66 b τούτων ἢ ὃ ἐπίσταται, τοῦτο μὴ ὑπολαμβάνειν; ἐπίσταται γάρ πως ὅτι τὸ Α τῷ Γ ὑπάρχει διὰ τοῦ Β, ὡς τῇ καθόλου τὸ κατὰ μέρος, ὥστε ὅ πως ἐπίσταται, τοῦτο ὅλως ἀξιοῖ μὴ ὑπολαμβάνειν· ὅπερ ἀδύνατον.

35 Ἐπὶ δὲ τοῦ πρότερον λεχθέντος, εἰ μὴ ἐκ τῆς αὐτῆς συστοιχίας τὸ μέσον, καθ' ἑκάτερον μὲν τῶν μέσων ἀμφοτέρας τὰς προτάσεις οὐκ ἐγχωρεῖ ὑπολαμβάνειν, οἷον τὸ Α τῷ μὲν Β παντὶ τῷ δὲ Γ μηδενί, ταῦτα δ' ἀμφότερα παντὶ τῷ Δ. συμβαίνει γὰρ ἢ ἁπλῶς ἢ ἐπί τι ἐναντίαν λαμβάνεσθαι τὴν 40 πρώτην πρότασιν. εἰ γὰρ ᾧ τὸ Β ὑπάρχει, παντὶ 67 a τὸ Α ὑπολαμβάνει ὑπάρχειν, τὸ δὲ Β τῷ Δ οἶδε, καὶ ὅτι τῷ Δ τὸ Α οἶδεν· ὥστ' εἰ πάλιν ᾧ τὸ Γ μηδενὶ οἴεται τὸ Α ὑπάρχειν, ᾧ τὸ Β τινὶ ὑπάρχει, τούτῳ οὐκ οἴεται τὸ Α ὑπάρχειν. τὸ δὲ παντὶ οἰόμενον ᾧ τὸ Β πάλιν τινὶ μὴ οἴεσθαι ᾧ τὸ Β ἢ 5 ἁπλῶς ἢ ἐπί τι ἐναντίον ἐστίν.

Οὕτω μὲν οὖν οὐκ ἐνδέχεται ὑπολαβεῖν· καθ' ἑκάτερον δὲ τὴν μίαν ἢ κατὰ θάτερον ἀμφοτέρας οὐδὲν κωλύει, οἷον τὸ Α παντὶ τῷ Β καὶ τὸ Β τῷ Δ, καὶ πάλιν τὸ Α μηδενὶ τῷ Γ. ὁμοία γὰρ ἡ τοιαύτη ἀπάτη καὶ ὡς ἀπατώμεθα περὶ τὰ ἐν μέρει, 10 οἷον εἰ τῷ Β παντὶ τὸ Α ὑπάρχει τὸ δὲ Β τῷ Γ παντί, τὸ Α παντὶ τῷ Γ ὑπάρξει. εἰ οὖν τις οἶδεν ὅτι τὸ Α ᾧ τὸ Β ὑπάρχει παντί, οἶδε καὶ ὅτι τῷ Γ. ἀλλ' οὐδὲν κωλύει ἀγνοεῖν τὸ Γ ὅτι ἔστιν, οἷον εἰ τὸ μὲν Α δύο ὀρθαὶ τὸ δ' ἐφ' ᾧ Β τρίγωνον τὸ δ'

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[a] l. 22 *supra*.

[b] Viz. C.

of this, that he does not think that which he knows? For he knows in a sense that A applies to C through B, as the particular applies to the universal; so that he professes not to think at all that which he in a sense knows; which is impossible.

It is impossible to hold opinions which are really contrary.

With regard to the first case which we mentioned,[a] where the middle term does not belong to the same series, it is impossible to think both the premisses with reference to each of the middle terms: *e.g.*, to think that A applies to all B but to no C, and that both the latter apply to all D; for it follows that the first premiss is contrary, either wholly or in part, to the other. For if anyone supposes that A applies to all of that to which B applies, and knows that B applies to D, he knows also that A applies to D. Hence if, again, he thinks that A applies to none of that to which C applies, he does not think that A applies to some of that[b] to which B applies. But to think that it applies to all of that to which B applies, and then again to think that it does not apply to some of that to which B applies, implies a contrariety, either absolute or partial.

Error arises from failure to relate knowledge of the particular to knowledge of the universal.

Thus it is not possible to think in this way; but there is no reason why one should not think one premiss with reference to each middle term, or both premisses with reference to one: *e.g.*, think that A applies to all B and B to D, and again that A applies to no C. Such a mistake is similar to that which we make with respect to particular things. *E.g.*, if A applies to all B and B to all C, A will apply to all C. Then if someone knows that A applies to all of that to which B applies, he knows also that it applies to C. But there is no reason why he should not be ignorant that C exists: *e.g.*, if A stands for 'two right angles,'

67 a
15 ἐφ' ᾧ Γ αἰσθητὸν τρίγωνον· ὑπολάβοι γὰρ ἄν τις
μὴ εἶναι τὸ Γ, εἰδὼς ὅτι πᾶν τρίγωνον ἔχει δύο
ὀρθάς, ὥσθ' ἅμα εἴσεται καὶ ἀγνοήσει ταὐτόν. τὸ
γὰρ εἰδέναι πᾶν τρίγωνον ὅτι δύο ὀρθαῖς οὐχ ἁπλοῦν
ἐστίν, ἀλλὰ τὸ μὲν τῷ τὴν καθόλου ἔχειν
ἐπιστήμην τὸ δὲ τὴν καθ' ἕκαστον. οὕτω μὲν οὖν
20 ὡς τῇ καθόλου οἶδε τὸ Γ ὅτι δύο ὀρθαί, ὡς δὲ τῇ
καθ' ἕκαστον οὐκ οἶδεν, ὥστ' οὐχ ἕξει τὰς ἐναντίας.

Ὁμοίως δὲ καὶ ὁ ἐν τῷ Μένωνι λόγος ὅτι ἡ
μάθησις ἀνάμνησις. οὐδαμοῦ γὰρ συμβαίνει προεπίστασθαι
τὸ καθ' ἕκαστον, ἀλλ' ἅμα τῇ ἐπαγωγῇ
λαμβάνειν τὴν τῶν κατὰ μέρος ἐπιστήμην ὥσπερ
25 ἀναγνωρίζοντας. ἔνια γὰρ εὐθὺς ἴσμεν, οἷον ὅτι
δύο ὀρθαῖς, ἐὰν εἰδῶμεν ὅτι τρίγωνον. ὁμοίως δὲ
καὶ ἐπὶ τῶν ἄλλων.

Τῇ μὲν οὖν καθόλου θεωροῦμεν τὰ ἐν μέρει, τῇ
δ' οἰκείᾳ οὐκ ἴσμεν, ὥστ' ἐνδέχεται καὶ ἀπατᾶσθαι
περὶ αὐτά, πλὴν οὐκ ἐναντίως, ἀλλ' ἔχειν μὲν τὴν
30 καθόλου ἀπατᾶσθαι δὲ τῇ κατὰ μέρος.

Ὁμοίως οὖν καὶ ἐπὶ τῶν προειρημένων· οὐ γὰρ
ἐναντία ἡ κατὰ τὸ μέσον ἀπάτη τῇ κατὰ τὸν συλλογισμὸν
ἐπιστήμῃ, οὐδ' ἡ καθ' ἑκάτερον τῶν

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[a] *i.e.* a given drawing or other representation of a triangle.

[b] *i.e.* knowledge of the particular object.

[c] That is, the universal rule may be recognized apart from special knowledge of all the particular instances of it. Ignorance of the latter is not incompatible with knowledge of the former.

[d] Plato, *Meno* 81. The point of the comparison is that on the Platonic view the study of particulars reawakens our latent knowledge of the universal.

[e] *Sc.* of immediate apprehension.

[f] 66 b 20-30.

B for ‘triangle’ and C for ‘sensible triangle,’[a] because a man might suppose that C does not exist, although he knows that every triangle has the sum of its angles equal to two right angles; so that he will at once know and not know the same thing. For to know that every triangle has the sum of its angles equal to two right angles has more than one meaning; it consists either in having universal or in having particular knowledge.[b] Thus by universal knowledge he knows that C is equal to two right angles, but he does not know it by particular knowledge; and therefore his ignorance will not be contrary to his knowledge.[c]

The Platonic doctrine of ἀνάμνησις criticized.

Similarly too with the theory in the *Meno*[d] that learning is recollection. For in no case do we find that we have previous knowledge of the individual, but we do find that in the process of induction we acquire knowledge of particular things just as though we could remember them; for there are some things which we know immediately: *e.g.*, if we know that X is a triangle we know that the sum of its angles is equal to two right angles. Similarly too in all other cases.[e]

Thus whereas we observe particular things by universal knowledge, we do not know them by the knowledge peculiar to them. Hence it is possible to be mistaken about them, not because we have contrary knowledge about them, but because, although we have universal knowledge of them, we are mistaken in our particular knowledge.

Error may arise from the failure to consider both premisses in

Similarly too in the cases mentioned above.[f] The mistake with regard to the middle term is not contrary to the knowledge obtained by the syllogism, nor are the suppositions with regard to the two middle

67 a
μέσων ὑπόληψις. οὐδὲν δὲ κωλύει εἰδότα καὶ ὅτι
τὸ Α ὅλῳ τῷ Β ὑπάρχει καὶ πάλιν τοῦτο τῷ Γ,
35 οἰηθῆναι μὴ ὑπάρχειν τὸ Α τῷ Γ, οἷον ὅτι πᾶσα
ἡμίονος ἄτοκος καὶ αὕτη ἡμίονος οἴεσθαι κύειν
ταύτην· οὐ γὰρ ἐπίσταται ὅτι τὸ Α τῷ Γ μὴ συνθεωρῶν
τὸ καθ' ἑκάτερον. ὥστε δῆλον ὅτι καὶ εἰ
τὸ μὲν οἶδε τὸ δὲ μὴ οἶδεν ἀπατηθήσεται· ὅπερ
ἔχουσιν αἱ καθόλου πρὸς τὰς κατὰ μέρος ἐπιστήμας.
67 b οὐδὲν γὰρ τῶν αἰσθητῶν ἔξω τῆς αἰσθήσεως γενόμενον
ἴσμεν, οὐδ' ἂν ᾐσθημένοι τυγχάνωμεν, εἰ μὴ
ὡς τῷ καθόλου καὶ τῷ ἔχειν τὴν οἰκείαν ἐπιστήμην,
ἀλλ' οὐχ ὡς τῷ ἐνεργεῖν. τὸ γὰρ ἐπίστασθαι
λέγεται τριχῶς, ἢ ὡς τῇ καθόλου ἢ ὡς τῇ οἰκείᾳ
5 ἢ ὡς τῷ ἐνεργεῖν, ὥστε καὶ τὸ ἠπατῆσθαι τοσαυταχῶς.

Οὐδὲν οὖν κωλύει καὶ εἰδέναι καὶ ἠπατῆσθαι περὶ
ταὐτό, πλὴν οὐκ ἐναντίως. ὅπερ συμβαίνει καὶ τῷ
καθ' ἑκατέραν εἰδότι τὴν πρότασιν καὶ μὴ ἐπεσκεμμένῳ
πρότερον· ὑπολαμβάνων γὰρ κύειν τὴν ἡμίονον
10 οὐκ ἔχει τὴν κατὰ τὸ ἐνεργεῖν ἐπιστήμην, οὐδ'
αὖ διὰ τὴν ὑπόληψιν ἐναντίαν ἀπάτην τῇ ἐπιστήμῃ·
συλλογισμὸς γὰρ ἡ ἐναντία ἀπάτη τῇ καθόλου.

Ὁ δ' ὑπολαμβάνων τὸ ἀγαθῷ εἶναι κακῷ εἶναι

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[a] We may have knowledge of a particular object which we have seen, but if we are not now aware of the object we are not exercising that knowledge.

[b] This apparently means that if the error in question were really contrary to the man's knowledge, he would have to know not only that all mules are sterile but also that no mules are sterile, and his judgement that the particular mule is in foal would depend syllogistically upon the latter premiss. In

conjunction.

terms contrary. There is no reason why a man who knows both that A applies to the whole of B and again that B applies to C should not think that A does not apply to C: *e.g.*, if he knows that every mule is sterile, and that X is a mule, he may think that X is in foal; because he does not comprehend that A applies to C, unless he considers both premisses in conjunction. Hence it is clear that he will also be mistaken if he knows the one but not the other; and this is just the relation of universal to particular knowledge. For we do not know any object of sense when it occurs outside our sensation—not even if we have actually perceived it—except by universal knowledge together with the possession, but not the actuality,[a] of the knowledge proper to that object. For there are three ways in which we can be said to know an object: by universal knowledge; by the knowledge proper to the object; and in actuality. Hence we can be said to be mistaken in as many different ways.

The error is never contrary to our knowledge.

Thus there is no reason why one should not both know and be mistaken about the same thing; only not in a contrary sense. Indeed this is just what happens in the case of the man who only knows the premisses in disjunction and has not previously considered the question; for in supposing that the mule is in foal he does not possess actual knowledge, yet at the same time this supposition does not make his mistake contrary to his knowledge; for the mistake contrary to knowledge of the universal is a syllogism.[b]

Real contrariety of thought

On the other hand he who thinks that the essence of good is the essence of bad will think that the same

reality, however, his error depends not upon syllogism but upon faulty perception.

67 b τὸ αὐτὸ ὑπολήψεται ἀγαθῷ εἶναι καὶ κακῷ. ἔστω γὰρ τὸ μὲν ἀγαθῷ εἶναι ἐφ' οὗ Α, τὸ δὲ κακῷ εἶναι ἐφ' οὗ Β, πάλιν δὲ τὸ ἀγαθῷ εἶναι ἐφ' οὗ Γ. ἐπεὶ οὖν ταὐτὸν ὑπολαμβάνει τὸ Β καὶ τὸ Γ, καὶ εἶναι τὸ Γ τὸ Β ὑπολήψεται, καὶ πάλιν τὸ Β τὸ Α εἶναι ὡσαύτως, ὥστε καὶ τὸ Γ τὸ Α. ὥσπερ γὰρ εἰ ἦν ἀληθὲς καθ' οὗ τὸ Γ τὸ Β καὶ καθ' οὗ τὸ Β τὸ Α, καὶ κατὰ τοῦ Γ τὸ Α ἀληθὲς ἦν, οὕτω καὶ ἐπὶ τοῦ ὑπολαμβάνειν. ὁμοίως δὲ καὶ ἐπὶ τοῦ εἶναι· ταὐτοῦ γὰρ ὄντος τοῦ Γ καὶ Β, καὶ πάλιν τοῦ Β καὶ Α, καὶ τὸ Γ τῷ Α ταὐτὸν ἦν· ὥστε καὶ ἐπὶ τοῦ δοξάζειν ὁμοίως. ἆρ' οὖν τοῦτο μὲν ἀναγκαῖον, εἴ τις δώσει τὸ πρῶτον; ἀλλ' ἴσως ἐκεῖνο ψεῦδος, τὸ ὑπολαμβάνειν τινὰ κακῷ εἶναι τὸ ἀγαθῷ εἶναι, εἰ μὴ κατὰ συμβεβηκός· πολλαχῶς γὰρ ἐγχωρεῖ τοῦθ' ὑπολαμβάνειν. ἐπισκεπτέον δὲ τοῦτο βέλτιον.

XXII. Ὅταν δ' ἀντιστρέφῃ τὰ ἄκρα, ἀνάγκη καὶ τὸ μέσον ἀντιστρέφειν πρὸς ἄμφω. εἰ γὰρ τὸ Α κατὰ τοῦ Γ διὰ τοῦ Β ὑπάρχει, εἰ ἀντιστρέφει καὶ ὑπάρχει, ᾧ τὸ Α, παντὶ τὸ Γ, καὶ τὸ Β τῷ Α ἀντιστρέφει, καὶ ὑπάρχει, ᾧ τὸ Α, παντὶ τὸ Β διὰ μέσου τοῦ Γ, καὶ τὸ Γ τῷ Β ἀντιστρέφει διὰ μέσου τοῦ Α. καὶ ἐπὶ τοῦ μὴ ὑπάρχειν ὡσαύτως, οἷον εἰ τὸ Β τῷ Γ ὑπάρχει τῷ δὲ Β τὸ Α μὴ ὑπάρχει, οὐδὲ τὸ Α τῷ Γ οὐχ ὑπάρξει. εἰ δὴ τὸ Β τῷ Α ἀντιστρέφει, καὶ τὸ Γ τῷ Α ἀντιστρέψει. ἔστω γὰρ τὸ

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[a] There is no obvious reference either here or in l. 22.

[b] The obligation is not discharged in the logical works, but *cf. Met.* IV. (Γ) iv.

[c] *i.e.* have the same extension and so are interchangeable.

thing is the essence of good and the essence of bad. Let A stand for ' essence of good,' B for ' essence of bad,' and C again for ' essence of good.' Then since he thinks B and C to be identical, he will also think that C is B, and again in the same way that B is A, and therefore also that C is A (for just as we saw[a] that if B is true of C and A of B, A is also true of C, so it is in respect of thinking. Similarly too in respect of being ; for we have seen that if C and B are identical and again B and A are identical, C is also identical with A. Therefore the same holds in the case of opinion). Is this then a necessary consequence, if one grants the original assumption ? But presumably it is false that anyone should think that the essence of good is the essence of bad, except accidentally ; for there are several senses in which this may be thought. But we must consider this question in greater detail.[b]

must rest upon a misapprehension which is practically incredible.

Conversion of terms. (1) Affirmative syllogisms.

XXII. When the extreme terms are convertible,[c] the middle term must also be convertible with both of them. For supposing that A applies as predicate to C through B, if this relation is convertible and C applies to all of that to which A applies, then B is also convertible with A, and applies through C as middle term to all of that to which A applies ; and C is convertible with B through A as middle term.[d] So too when the conclusion is negative ; *e.g.*, if B applies to C but A does not apply to B, neither will A apply to C. Then if B is convertible with A, C will also be convertible with A. For let B not be appli-

(2) Negative syllogisms.

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[d] The syllogisms are as follows :

(*a*) BaA	(*b*) CaB	(*c′*) AaC
(*b*) CaB	(*c′*) AaC	(*a*) BaA
(*c*) CaA	(*a′*) AaB	(*b′*) BaC

67 b
Β μὴ ὑπάρχον τῷ Α· οὐδ' ἄρα τὸ Γ· παντὶ γὰρ τῷ
Γ τὸ Β ὑπῆρχεν. καὶ εἰ τῷ Β τὸ Γ ἀντιστρέφει,
καὶ τῷ Α[1] ἀντιστρέφει· καθ' οὗ γὰρ ἅπαντος τὸ Β,
καὶ τὸ Γ. καὶ εἰ τὸ Γ πρὸς τὸ Α ἀντιστρέφει, καὶ
68 a τὸ Β[2] ἀντιστρέφει [πρὸς τὸ Α].[3] ᾧ γὰρ τὸ Β τὸ
Γ, ᾧ δὲ τὸ Α τὸ Γ[4] οὐχ ὑπάρχει. καὶ μόνον τοῦτο
ἀπὸ τοῦ συμπεράσματος ἄρχεται, τὰ δ' ἄλλα οὐχ
ὁμοίως καὶ ἐπὶ τοῦ κατηγορικοῦ συλλογισμοῦ.

Πάλιν εἰ τὸ Α καὶ τὸ Β ἀντιστρέφει καὶ τὸ Γ καὶ τὸ Δ ὡσαύτως, ἅπαντι δ' ἀνάγκη τὸ Α ἢ τὸ Γ ὑπάρχειν, καὶ τὸ Β καὶ Δ οὕτως ἕξει ὥστε παντὶ θάτερον ὑπάρχειν. ἐπεὶ γὰρ ᾧ τὸ Α τὸ Β, καὶ ᾧ τὸ Γ τὸ Δ, παντὶ δὲ τὸ Α ἢ τὸ Γ καὶ οὐχ ἅμα, φανερὸν ὅτι καὶ τὸ Β ἢ τὸ Δ παντὶ καὶ οὐχ ἅμα. οἷον εἰ τὸ ἀγένητον ἄφθαρτον καὶ τὸ ἄφθαρτον ἀγένητον, ἀνάγκη τὸ γενόμενον φθαρτὸν καὶ τὸ φθαρτὸν γεγονέναι· δύο γὰρ συλλογισμοὶ σύγκεινται. πάλιν εἰ παντὶ μὲν τὸ Α ἢ τὸ Β καὶ τὸ Γ ἢ τὸ Δ, ἅμα δὲ μὴ ὑπάρχει, εἰ ἀντιστρέφει τὸ Α καὶ τὸ Γ, καὶ τὸ Β καὶ τὸ Δ ἀντιστρέφει. εἰ γὰρ τινὶ μὴ ὑπάρχει τὸ Β ᾧ τὸ Δ, δῆλον ὅτι τὸ Α ὑπάρχει. εἰ

[1] τῷ Α] τὸ Α A¹B¹cu : τῷ Α τὸ Β Pacius.

[2] ἀντιστρέφει, καὶ τὸ Β] ἀντιστρέφει <καὶ τὸ Β>, καὶ τὸ Β Jenkinson.

[3] πρὸς τὸ Α f, πρὸς τὸ Α δηλονότι supra lineam C² : om. cet.

[4] τὸ Α, τὸ Γ A²B², Philoponus, Pacius : τὸ Γ, τὸ Α A¹B¹Cnmf.

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[a] AeC may be proved by a syllogism in Camestres, but *cf.* the following note.

[b] It seems better to keep the MS. reading τῷ Α than to accept τῷ Α τὸ Β on the authority of Pacius. His reading requires a proof that no A is B ; and whereas his argument is generally condemned as too complicated, the syllogism in

cable to A; then neither will C be applicable, for B was assumed to apply to all C.[a] Moreover, if C is convertible with B, it is also convertible with A; for where B is predicated of all, so too is C.[b] Again, if C is convertible in relation to A, so too is B; for C applies to that to which B applies, but does not apply to that to which A applies. This is the only example which starts from the conclusion; the others differ in this respect from the affirmative syllogism.

Conversion of pairs of exhaustive alternatives.

Again, if A and B are convertible, and likewise C and D, and either A or C must apply to everything, B and D must also be so related that one or the other applies to everything. For since B applies to that to which A applies, and D to that to which C applies, and either A or C but not both at once must apply to everything: it is evident that either B or D, but not both at once, must apply to everything. *E.g.*, if the ungenerated is imperishable and the imperishable ungenerated, that which has been generated must be perishable, and that which is perishable must have been generated; for we have here the product of two syllogisms.[c] Again, if either A or B (but not both at once) applies to everything, and likewise either C or D, if A and C are convertible, so are B and D. For if B does not apply to something to which D applies,

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Celarent offered by modern expositors only proves the converse, viz. that no B is A. Hence although the proof which the MS. reading implies, that no A is C, is unattainable by syllogism, I am disposed to agree with Waitz and Maier that Aristotle bases his argument simply upon the interchangeability of the convertible terms B and C. So in the next example also.

[c] Since this example illustrates the case which follows and not that which precedes it, either the text or Aristotle's thought appears to be in disorder. Hence it is hard to say what the 'two syllogisms' are; but *cf.* the next note.

δὲ τὸ Α, καὶ τὸ Γ· ἀντιστρέφει γάρ· ὥστε ἅμα τὸ Γ καὶ Δ. τοῦτο δ' ἀδύνατον.

Ὅταν δὲ τὸ Α ὅλῳ τῷ Β καὶ τῷ Γ ὑπάρχῃ καὶ μηδενὸς ἄλλου κατηγορῆται, ὑπάρχῃ δὲ καὶ τὸ Β παντὶ τῷ Γ, ἀνάγκη τὸ Α καὶ Β ἀντιστρέφειν· ἐπεὶ γὰρ κατὰ μόνων τῶν ΒΓ λέγεται τὸ Α, κατηγορεῖται δὲ τὸ Β καὶ αὐτὸ αὑτοῦ καὶ τοῦ Γ, φανερὸν ὅτι καθ' ὧν τὸ Α καὶ τὸ Β λεχθήσεται πάντων πλὴν αὐτοῦ τοῦ Α.

Πάλιν ὅταν τὸ Α καὶ τὸ Β ὅλῳ τῷ Γ ὑπάρχῃ, ἀντιστρέφῃ δὲ τὸ Γ τῷ Β, ἀνάγκη τὸ Α παντὶ τῷ Β ὑπάρχειν· ἐπεὶ γὰρ παντὶ τῷ Γ τὸ Α, τὸ δὲ Γ τῷ Β διὰ τὸ ἀντιστρέφειν, καὶ τὸ Α παντὶ τῷ Β ὑπάρξει.

Ὅταν δὲ δυοῖν ὄντοιν τὸ Α τοῦ Β αἱρετώτερον ᾖ, ὄντων ἀντικειμένων, καὶ τὸ Δ τοῦ Γ ὡσαύτως, εἰ αἱρετώτερα τὰ ΑΓ τῶν ΒΔ, τὸ Α τοῦ Δ αἱρετώτερον. ὁμοίως γὰρ διωκτὸν τὸ Α καὶ φευκτὸν τὸ Β (ἀντικείμενα γάρ), καὶ τὸ Γ τοῦ Δ (καὶ γὰρ ταῦτα ἀντίκεινται). εἰ οὖν τὸ Α τῷ Δ ὁμοίως αἱρετόν, καὶ τὸ Β τῷ Γ φευκτόν· ἑκάτερον γὰρ ἑκατέρῳ ὁμοίως, φευκτὸν διωκτῷ· ὥστε καὶ τὰ ἄμφω τὰ ΑΓ τοῖς ΒΔ. ἐπεὶ δὲ μᾶλλον, οὐχ οἷόν τε ὁμοίως· καὶ γὰρ ἂν τὰ ΒΔ ὁμοίως ἦσαν. εἰ δὲ τὸ Δ τοῦ Α αἱρετώτερον, καὶ τὸ Β τοῦ Γ ἧττον φευκτόν· τὸ γὰρ ἔλαττον τῷ ἐλάττονι ἀντίκειται. αἱρετώτερον δὲ τὸ μεῖζον ἀγαθὸν καὶ ἔλαττον κακὸν ἢ τὸ ἔλαττον ἀγαθὸν καὶ μεῖζον κακόν· καὶ τὸ ἅπαν ἄρα τὸ ΒΔ αἱρετώτερον τοῦ ΑΓ· νῦν δ' οὐκ ἔστιν. τὸ Α ἄρα

clearly A applies to it ; and if A applies, so does C, since they are convertible. Therefore C and D both apply at once ; but this is impossible.[a]

Other cases of conversion

When A applies to the whole of B and of C, and is predicated of nothing else, and B also applies to all C, A and B must be convertible. For since A is stated only of B and C, and B is predicated both of itself and of C, it is evident that B will also be stated of all subjects of which A is stated, except A itself.

Again, when A and B apply to the whole of C, and C is convertible with B, A must apply to all B. For since A applies to all C, and C by conversion to B, A will also apply to all B.

Preferability of combinations of opposite alternatives.

When, of two opposite alternatives A and B, A is preferable to B, and similarly D is preferable to C, if A and C together are preferable to B and D together, A is preferable to D. For A is as much to be pursued as B is to be avoided, since they are opposites ; and similarly with C and D, since they also are opposites. Then if A is as much to be chosen as D, B is as much to be avoided as C ; since each is equally with each to be pursued or avoided respectively. Therefore the combination AC is equally desirable with the combination BD. But since AC is preferable, it cannot be equally desirable, for if so, BD would be equally desirable. And if D is preferable to A, B will also be less to be avoided than C ; for the lesser is opposed to the lesser extreme ; and the greater good and lesser evil will be preferable to the lesser good and greater evil. Therefore the combination BD will be preferable to AC. But in

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[a] *Sc.* 'and therefore B applies to all D. Similarly D applies to all B. Therefore B and D are convertible.'

68 a αἱρετώτερον τοῦ Δ, καὶ τὸ Γ ἄρα τοῦ Β ἧττον φευκτόν.

40 Εἰ δὴ ἕλοιτο πᾶς ὁ ἐρῶν κατὰ τὸν ἔρωτα τὸ Α τὸ οὕτως ἔχειν ὥστε χαρίζεσθαι καὶ τὸ μὴ χαρίζεσθαι τὸ ἐφ' οὗ Γ, ἢ τὸ χαρίζεσθαι τὸ ἐφ' οὗ Δ καὶ
68 b τὸ μὴ τοιοῦτον εἶναι οἷον χαρίζεσθαι τὸ ἐφ' οὗ Β, δῆλον ὅτι τὸ Α τὸ τοιοῦτον εἶναι αἱρετώτερόν ἐστιν ἢ τὸ χαρίσασθαι.[1] τὸ ἄρα φιλεῖσθαι τῆς συνουσίας αἱρετώτερον κατὰ τὸν ἔρωτα. μᾶλλον ἄρα ὁ ἔρως
5 ἐστὶ τῆς φιλίας ἢ τοῦ συνεῖναι· εἰ δὲ μάλιστα τούτου, καὶ τέλος τοῦτο. τὸ ἄρα συνεῖναι ἢ οὐκ ἔστιν ὅλως ἢ τοῦ φιλεῖσθαι ἕνεκεν· καὶ γὰρ αἱ ἄλλαι ἐπιθυμίαι καὶ τέχναι οὕτως.[2]

XXIII. Πῶς μὲν οὖν ἔχουσιν οἱ ὅροι κατὰ τὰς ἀντιστροφὰς καὶ τὸ φευκτότεροι ἢ αἱρετώτεροι[3]
10 εἶναι, φανερόν· ὅτι δ' οὐ μόνον οἱ διαλεκτικοὶ καὶ ἀποδεικτικοὶ συλλογισμοὶ διὰ τῶν προειρημένων γίγνονται σχημάτων, ἀλλὰ καὶ οἱ ῥητορικοὶ καὶ ἁπλῶς ἡτισοῦν πίστις καὶ ἡ καθ' ὁποιανοῦν μέθοδον, νῦν ἂν εἴη λεκτέον· ἅπαντα γὰρ πιστεύομεν ἢ διὰ συλλογισμοῦ ἢ ἐξ ἐπαγωγῆς.

15 Ἐπαγωγὴ μὲν οὖν ἐστι καὶ ὁ ἐξ ἐπαγωγῆς συλλογισμὸς τὸ διὰ τοῦ ἑτέρου θάτερον ἄκρον τῷ μέσῳ συλλογίσασθαι, οἷον εἰ τῶν ΑΓ μέσον τὸ Β, διὰ τοῦ Γ δεῖξαι τὸ Α τῷ Β ὑπάρχειν· οὕτω γὰρ ποιούμεθα τὰς ἐπαγωγάς. οἷον ἔστω τὸ Α μακρό-
20 βιον, τὸ δ' ἐφ' ᾧ Β τὸ χολὴν μὴ ἔχον, ἐφ' ᾧ δὲ Γ

[1] χαρίζεσθαι Amf.

[2] οὕτως] οὕτω γίνονται αβγδ An².

[3] φευκτότεροι ἢ (ἢ καὶ C) αἱρετώτεροι ABC: αἱρετώτερον ἢ φευκτότερον mf, Bekker: αἱρετώτεροι ἢ φευκτότεροι n².

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[a] For the distinction between dialectical and demonstrative reasoning *cf.* 24 a 22.

fact it is not. Therefore A is preferable to D, and therefore C is less to be avoided than B.

If then every lover under the influence of his love would prefer his beloved to be disposed to gratify him (A) without doing so (C), rather than gratify him (D) without being inclined to do so (B), clearly A —that the beloved should be so inclined—is preferable to the act of gratification. Therefore in love to have one's affection returned is preferable to intercourse with the beloved. Therefore love aims at affection rather than at intercourse ; and if affection is the principal aim of love, it is also the *end* of love. Therefore intercourse is either not an end at all, or only with a view to receiving affection. The same principle, indeed, governs all other desires and arts.

All convictions are reached either by syllogism or by induction.

XXIII. It is evident, then, how the terms are conditioned as regards conversions and as representing degrees of preferability and the reverse. We must now observe that not only dialectical [a] and demonstrative syllogisms are effected by means of the figures already described, but also rhetorical [b] syllogisms and in general every kind of mental conviction, whatever form it may take. For all our beliefs are formed either by means of syllogism or from induction.

Rules for induction.

Induction, or inductive reasoning, consists in establishing a relation between one extreme term and the middle term by means of the other extreme ; *e.g.*, if B is the middle term of A and C, in proving by means of C that A applies to B ; for this is how we effect inductions. *E.g.*, let A stand for 'long-lived,' B for 'that which has no bile' and C for the long-lived

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[b] For rhetorical arguments *cf. An. Post.* 71 a 9-11.

68 b τὸ καθ' ἕκαστον μακρόβιον, οἷον ἄνθρωπος καὶ ἵππος καὶ ἡμίονος. τῷ δὴ Γ ὅλῳ ὑπάρχει τὸ Α· πᾶν γαρ τὸ ἄχολον μακρόβιον.[1] ἀλλὰ καὶ τὸ Β, τὸ μὴ ἔχον χολήν, παντὶ ὑπάρχει τῷ Γ. εἰ οὖν ἀντιστρέφει τὸ Γ τῷ Β καὶ μὴ ὑπερτείνει τὸ μέσον, ἀνάγκη τὸ Α τῷ Β ὑπάρχειν· δέδεικται γὰρ πρότερον ὅτι ἂν δύο ἄττα τῷ αὐτῷ ὑπάρχῃ καὶ πρὸς θάτερον αὐτῶν ἀντιστρέφῃ τὸ ἄκρον, ὅτι τῷ ἀντιστρέφοντι καὶ θάτερον ὑπάρξει τῶν κατηγορουμένων. δεῖ δὲ νοεῖν τὸ Γ τὸ ἐξ ἁπάντων τῶν καθ' ἕκαστον συγκείμενον· ἡ γὰρ ἐπαγωγὴ διὰ πάντων.

Ἔστι δ' ὁ τοιοῦτος συλλογισμὸς τῆς πρώτης καὶ ἀμέσου προτάσεως· ὧν μὲν γάρ ἐστι μέσον διὰ τοῦ μέσου ὁ συλλογισμός, ὧν δὲ μή ἐστι, δι' ἐπαγωγῆς. καὶ τρόπον τινὰ ἀντίκειται ἡ ἐπαγωγὴ τῷ συλλογισμῷ· ὁ μὲν γὰρ διὰ τοῦ μέσου τὸ ἄκρον τῷ τρίτῳ δείκνυσιν, ἡ δὲ διὰ τοῦ τρίτου τὸ ἄκρον τῷ μέσῳ. φύσει μὲν οὖν πρότερος καὶ γνωριμώτερος ὁ διὰ τοῦ μέσου συλλογισμός, ἡμῖν δ' ἐναργέστερος ὁ διὰ τῆς ἐπαγωγῆς.

XXIV. Παράδειγμα δ' ἐστὶν ὅταν τῷ μέσῳ τὸ ἄκρον ὑπάρχον δειχθῇ διὰ τοῦ ὁμοίου τῷ τρίτῳ· δεῖ δὲ καὶ τὸ μέσον τῷ τρίτῳ καὶ τὸ πρῶτον τῷ

[1] πᾶν . . . μακρόβιον an secludendum?

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[a] *Cf. De Part. Animal.* 670 a 20, 677 a 15–b 11.

[b] This statement is a *petitio principii*; it is also irrelevant here, and should probably be excised.

[c] *Cf. Hist. Animal.* 506 a 20, *De Part. Animal.* 676 b 26 ff.

[d] *i.e.* B, which is the middle term of the induction. In the sentence which follows, Aristotle has in mind (as Jenkinson points out) two syllogisms: one in Darapti (CaA—CaB, ∴ BiA) and one—after the conversion of BC—in Barbara (CaA—BaC, ∴ BaA); but in these B is still called the middle and C the extreme term.

individuals such as man and horse and mule.[a] Then A applies to the whole of C [for every bileless animal is long-lived].[b] But B, 'not having bile,' also applies to all C.[c] Then if C is convertible with B, *i.e.*, if the middle term [d] is not wider in extension, A must apply to B. For it has been shown above [e] that if any two predicates apply to the same subject and the extreme is convertible with one of them, then the other predicate will also apply to the one which is convertible. We must, however, understand by C the sum of all the particular instances; for it is by taking all of these into account that induction proceeds.

Induction contrasted with syllogism.

This kind of syllogism is concerned with the first or immediate premiss.[f] Where there is a middle term, the syllogism proceeds by means of the middle; where there is not, it proceeds by induction. There is a sense in which induction is opposed to syllogism, for the latter shows by the middle term that the major extreme applies to the third, while the former shows by means of the third that the major extreme applies to the middle. Thus by nature the syllogism by means of the middle is prior and more knowable; but syllogism by induction is more apparent to us.[g]

Proof by Example.

XXIV. We have an Example [h] when the major extreme is shown to be applicable to the middle term by means of a term similar to the third. It must be known both that the middle applies to the third term

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[e] 68 a 21-25.

[f] Induction supplies, without the aid of a middle term, the universal proposition which stands as major premiss for purposes of inference.

[g] Because the abstract logical process is from universal to particular, but the human mind proceeds from particular to universal. *Cf. Met.* VII. (Z) iv. 1029 b 3-12.

[h] *Cf. An. Post.* 71 a 10, *Rhet.* 1356 b 3.

68 b ὁμοίῳ γνώριμον εἶναι ὑπάρχον. οἷον ἔστω τὸ Α
69 a κακόν, τὸ δὲ Β πρὸς ὁμόρους ἀναιρεῖσθαι πόλεμον,
ἐφ' ᾧ δὲ Γ τὸ Ἀθηναίους πρὸς Θηβαίους, τὸ δ'
ἐφ' ᾧ Δ Θηβαίους πρὸς Φωκεῖς. ἐὰν οὖν βουλώμεθα
δεῖξαι ὅτι τὸ Θηβαίοις πολεμεῖν κακόν ἐστι, ληπτέον ὅτι τὸ πρὸς τοὺς ὁμόρους πολεμεῖν κακόν·
5 τούτου δὲ πίστις ἐκ τῶν ὁμοίων, οἷον ὅτι Θηβαίοις
ὁ πρὸς Φωκεῖς. ἐπεὶ οὖν τὸ πρὸς τοὺς ὁμόρους
κακόν, τὸ δὲ πρὸς Θηβαίους πρὸς ὁμόρους ἐστί,
φανερὸν ὅτι τὸ πρὸς Θηβαίους πολεμεῖν κακόν.
ὅτι μὲν οὖν τὸ Β τῷ Γ καὶ τῷ Δ ὑπάρχει φανερὸν
(ἄμφω γάρ ἐστι πρὸς τοὺς ὁμόρους ἀναιρεῖσθαι
10 πόλεμον), καὶ ὅτι τὸ Α τῷ Δ (Θηβαίοις γὰρ οὐ
συνήνεγκεν ὁ πρὸς Φωκεῖς πόλεμος)· ὅτι δὲ τὸ Α
τῷ Β ὑπάρχει διὰ τοῦ Δ δειχθήσεται. τὸν αὐτὸν
δὲ τρόπον κἂν εἰ διὰ πλειόνων τῶν ὁμοίων ἡ πίστις
γίγνοιτο τοῦ μέσου πρὸς τὸ ἄκρον.

Φανερὸν οὖν ὅτι τὸ παράδειγμά ἐστιν οὔτε ὡς
15 μέρος πρὸς ὅλον οὔτε ὡς ὅλον πρὸς μέρος, ἀλλ' ὡς
μέρος πρὸς μέρος, ὅταν ἄμφω μὲν ᾖ ὑπὸ ταὐτό,
γνώριμον δὲ θάτερον. καὶ διαφέρει τῆς ἐπαγωγῆς
ὅτι ἡ μὲν ἐξ ἁπάντων τῶν ἀτόμων τὸ ἄκρον ἐδείκνυεν ὑπάρχειν τῷ μέσῳ καὶ πρὸς τὸ ἄκρον οὐ
συνῆπτε τὸν συλλογισμόν, τὸ δὲ καὶ συνάπτει καὶ
οὐκ ἐξ ἁπάντων δείκνυσιν.

20 XXV. Ἀπαγωγὴ δ' ἐστὶν ὅταν τῷ μὲν μέσῳ τὸ
πρῶτον δῆλον ᾖ ὑπάρχον τῷ δὲ ἐσχάτῳ τὸ μέσον
ἄδηλον μέν, ὁμοίως δὲ πιστὸν ἢ μᾶλλον τοῦ συμ-

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[a] Example proceeds neither (like induction) from particular to general, nor (like syllogism) *vice versa*, but from one co-ordinate particular to another.

[b] 68 b 27-29.

and that the first applies to the term similar to the third. *E.g.*, let A be 'bad,' B 'to make war on neighbours,' C 'Athens against Thebes' and D 'Thebes against Phocis.' Then if we require to prove that war against Thebes is bad, we must be satisfied that war against neighbours is bad. Evidence of this can be drawn from similar examples, *e.g.*, that war by Thebes against Phocis is bad. Then since war against neighbours is bad, and war against Thebes is against neighbours, it is evident that war against Thebes is bad. Now it is evident that B applies to C and D (for they are both examples of making war on neighbours), and A to D (since the war against Phocis did Thebes no good); but that A applies to B will be proved by means of D. The same method will obtain supposing that our conviction that the middle term is related to the extreme is drawn from more than one similar term.

Example contrasted with syllogism and induction.

Thus it is evident that an example represents the relation, not of part to whole or of whole to part, but of one part to another, where both are subordinate to the same general term, and one of them is known.[a] It differs from induction in that the latter, as we saw,[b] shows from an examination of all the individual cases that the ⟨major⟩ extreme applies to the middle, and does not connect the conclusion with the ⟨minor⟩ extreme; whereas the example does connect it[c] and does not use all the individual cases for its proof.

Reduction as a means to obtainin greater certainty.

XXV. We have Reduction (1) when it is obvious that the first term applies to the middle, but that the middle applies to the last term is not obvious, yet nevertheless is more probable or not less probable than the conclusion; or (2) if there are not many

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[c] 69 a 7.

περάσματος, ἔτι ἂν ὀλίγα ᾖ τὰ μέσα τοῦ ἐσχάτου καὶ τοῦ μέσου· πάντως γὰρ ἐγγύτερον εἶναι συμβαίνει τῆς ἐπιστήμης. οἷον ἔστω τὸ Α τὸ διδακτόν, ἐφ' οὗ Β ἐπιστήμη, τὸ Γ δικαιοσύνη. ἡ μὲν οὖν ἐπιστήμη ὅτι διδακτὸν φανερόν· ἡ δ' ἀρετὴ εἰ ἐπιστήμη ἄδηλον. εἰ οὖν ὁμοίως ἢ μᾶλλον πιστὸν τὸ ΒΓ τοῦ ΑΓ, ἀπαγωγή ἐστιν· ἐγγύτερον γὰρ τοῦ ἐπίστασθαι διὰ τὸ προσειληφέναι, τὴν ΑΓ[1] ἐπιστήμην πρότερον οὐκ ἔχοντας.

Ἢ πάλιν εἰ ὀλίγα τὰ μέσα τῶν ΒΓ· καὶ γὰρ οὕτως ἐγγύτερον τοῦ εἰδέναι. οἷον εἰ τὸ Δ εἴη τετραγωνίζεσθαι, τὸ δ' ἐφ' ᾧ Ε εὐθύγραμμον, τὸ δ' ἐφ' ᾧ Ζ κύκλος· εἰ τοῦ ΕΖ ἓν μόνον εἴη μέσον, τὸ μετὰ μηνίσκων ἴσον γίγνεσθαι εὐθυγράμμῳ τὸν κύκλον, ἐγγὺς ἂν εἴη τοῦ εἰδέναι. ὅταν δὲ μήτε πιστότερον ᾖ τὸ ΒΓ τοῦ ΑΓ μήτ' ὀλίγα τὰ μέσα, οὐ λέγω ἀπαγωγήν· οὐδ' ὅταν ἄμεσον ᾖ τὸ ΒΓ· ἐπιστήμη γὰρ τὸ τοιοῦτον.

XXVI. Ἔνστασις δ' ἐστὶ πρότασις προτάσει ἐναντία. διαφέρει δὲ τῆς προτάσεως ὅτι τὴν μὲν ἔνστασιν ἐνδέχεται εἶναι ἐπὶ μέρους, τὴν δὲ πρότασιν ἢ ὅλως οὐκ ἐνδέχεται ἢ οὐκ ἐν τοῖς καθόλου συλλογισμοῖς.

Φέρεται δὲ ἡ ἔνστασις διχῶς καὶ διὰ δύο σχημάτων, διχῶς μὲν ὅτι ἢ καθόλου ἢ ἐν μέρει πᾶσα ἔνστασις, ἐκ δύο δὲ σχημάτων ὅτι ἀντικείμεναι φέρονται τῇ προτάσει, τὰ δ' ἀντικείμενα ἐν τῷ

[1] προσειληφέναι, τὴν ΑΓ] προσειληφέναι τῇ ΑΓ τὴν ΒΓ, Pacius, Tricot.

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[a] According to the theory of Hippocrates of Chios: *cf. Soph. Elench.* 171 b 15.

intermediate terms between the last and the middle ; for in all such cases the effect is to bring us nearer to knowledge. (1) *E.g.*, let A stand for ' that which can be taught,' B for ' knowledge ' and C for ' morality.' Then that knowledge can be taught is evident ; but whether virtue is knowledge is not clear. Then if BC is not less probable or is more probable than AC, we have reduction ; for we are nearer to knowledge for having introduced an additional term, whereas before we had no knowledge that AC is true.

(2) Or again we have reduction if there are not many intermediate terms between B and C ; for in this case too we are brought nearer to knowledge. *E.g.*, suppose that D is ' to square,' E ' rectilinear figure ' and F ' circle.' Assuming that between E and F there is only one intermediate term—that the circle becomes equal to a rectilinear figure by means of lunules [a]—we should approximate to knowledge. When, however, BC is not more probable than AC, or there are several intermediate terms, I do not use the expression ' reduction ' ; nor when the proposition BC is immediate ; for such a statement implies knowledge.[b]

Objection defined.

XXVI. An objection is a premiss which is contrary to another premiss. It differs from the premiss in that it may be particular, whereas the premiss either cannot be particular at all, or at least not in universal syllogisms.

Objections may be particular or universal; they can be raised in

An objection can be brought in two ways and in two figures : in two ways because every objection is either universal or particular, and by two figures because objections are brought in opposition to the

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[b] And therefore reduction, which is a method of approximation to knowledge, is out of place.

πρώτῳ καὶ τῷ τρίτῳ σχήματι περαίνονται μόνοις. ὅταν γὰρ ἀξιώσῃ παντὶ ὑπάρχειν, ἐνιστάμεθα ὅτι οὐδενὶ ἢ ὅτι τινὶ οὐχ ὑπάρχει· τούτων δὲ τὸ μὲν μηδενὶ ἐκ τοῦ πρώτου σχήματος, τὸ δὲ τινὶ μὴ ἐκ τοῦ ἐσχάτου. οἷον ἔστω τὸ Α μίαν εἶναι ἐπιστήμην, ἐφ' ᾧ τὸ Β ἐναντία· προτείναντος δὴ μίαν εἶναι τῶν ἐναντίων ἐπιστήμην ἢ ὅτι ὅλως οὐχ ἡ αὐτὴ τῶν ἀντικειμένων ἐνίσταται, τὰ δ' ἐναντία ἀντικείμενα, ὥστε γίγνεται τὸ πρῶτον σχῆμα, ἢ ὅτι τοῦ γνωστοῦ καὶ ἀγνώστου οὐ μία· τοῦτο δὲ τὸ τρίτον· κατὰ γὰρ τοῦ Γ, τοῦ γνωστοῦ καὶ ἀγνώστου, τὸ μὲν ἐναντία εἶναι ἀληθές, τὸ δὲ μίαν αὐτῶν ἐπιστήμην εἶναι ψεῦδος.

Πάλιν ἐπὶ τῆς στερητικῆς προτάσεως ὡσαύτως. ἀξιοῦντος γὰρ μὴ εἶναι μίαν τῶν ἐναντίων ἢ ὅτι πάντων τῶν ἀντικειμένων ἢ ὅτι τινῶν ἐναντίων ἡ αὐτὴ λέγομεν, οἷον ὑγιεινοῦ καὶ νοσώδους· τὸ μὲν οὖν πάντων ἐκ τοῦ πρώτου, τὸ δὲ τινῶν ἐκ τοῦ τρίτου σχήματος.

Ἁπλῶς γὰρ ἐν πᾶσι καθόλου μὲν ἐνιστάμενον ἀνάγκη πρὸς τὸ καθόλου τῶν προτεινομένων τὴν ἀντίφασιν εἰπεῖν· οἷον εἰ μὴ τὴν αὐτὴν ἀξιοῖ τῶν ἐναντίων, πάντων εἰπόντα τῶν ἀντικειμένων μίαν (οὕτω δ' ἀνάγκη τὸ πρῶτον εἶναι σχῆμα, μέσον γὰρ γίγνεται τὸ καθόλου πρὸς τὸ ἐξ ἀρχῆς)· ἐν μέρει δέ, πρὸς ὅ ἐστι καθόλου καθ' οὗ λέγεται ἡ πρό-

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[a] Because the second figure gives only negative conclusions; 28 a 7.

premiss, and opposites can be proved only in the first and third figures.[a] For when our opponent claims that the predicate applies to all of the subject, we object that it applies to none, or does not apply to some. The former objection is brought by the first figure, and the latter by the last. *E.g.*, let A stand for 'to be one science,' and B for 'contraries.' Then when it is premised that there is one science of contraries, the objection is either (1) that the same science does not treat of opposites, and that contraries are opposites—so that the first figure results ; or (2) that there is not one science of the knowable and unknowable. This is the third figure ; for to state of C, viz. the knowable and unknowable, that they are contraries, is true ; but to state that there is one science of them is false.

the first and third figures. Objection to an affirmative premiss,

So again in the case of a negative premiss. When it is claimed that there is not one science of contraries, we reply either that all opposites or that some contraries, *e.g.*, the healthy and the diseased, are studied by a single science. The former objection is raised by the first figure, and the latter by the third.

and to a negative premiss.

The general rule is that in all cases one who is raising a universal objection must state his contradiction with reference to the universal including the terms premised ; *e.g.*, if it is claimed that the same science does not treat of contraries, he must maintain that there is one science of all opposites. In this way the first figure must result ; for the universal which includes the original term becomes the middle. But when the objection is particular, the contradiction must be stated with reference to the term which is included by the subject of the premiss as a universal ;

Rules for raising universal and particular objections.

69 b
τασις, οἷον γνωστοῦ καὶ ἀγνώστου μὴ τὴν αὐτήν·
τὰ γὰρ ἐναντία καθόλου πρὸς ταῦτα (καὶ γίγνεται
τὸ τρίτον σχῆμα· μέσον γὰρ τὸ ἐν μέρει λαμβανό-
μενον, οἷον τὸ γνωστὸν καὶ τὸ ἄγνωστον). ἐξ ὧν
γὰρ ἔστι συλλογίσασθαι τοὐναντίον, ἐκ τούτων καὶ
30 τὰς ἐνστάσεις ἐπιχειροῦμεν λέγειν. διὸ καὶ ἐκ
μόνων τούτων τῶν σχημάτων φέρομεν· ἐν μόνοις
γὰρ οἱ ἀντικείμενοι συλλογισμοί (διὰ γὰρ τοῦ μέσου
οὐκ ἦν καταφατικῶς).

Ἔτι δὲ κἂν λόγου δέοιτο πλείονος ἡ διὰ τοῦ
μέσου σχήματος, οἷον εἰ μὴ δοίη τὸ Α τῷ Β ὑπάρ-
χειν διὰ τὸ μὴ ἀκολουθεῖν αὐτῷ τὸ Γ. τοῦτο γὰρ
35 δι' ἄλλων προτάσεων δῆλον· οὐ δεῖ δὲ εἰς ἄλλα
ἐκτρέπεσθαι τὴν ἔνστασιν, ἀλλ' εὐθὺς φανερὰν ἔχειν
τὴν ἑτέραν πρότασιν. διὸ καὶ τὸ σημεῖον ἐκ μόνου
τούτου τοῦ σχήματος οὐκ ἔστιν.

Ἐπισκεπτέον δὲ καὶ περὶ τῶν ἄλλων ἐνστάσεων,
οἷον περὶ τῶν ἐκ τοῦ ἐναντίου καὶ τοῦ ὁμοίου καὶ
70 a τοῦ κατὰ δόξαν, καὶ εἰ τὴν ἐν μέρει ἐκ τοῦ πρώτου
ἢ τὴν στερητικὴν ἐκ τοῦ μέσου δυνατὸν λαβεῖν.

XXVII. Εἰκὸς δὲ καὶ σημεῖον οὐ ταὐτόν ἐστιν,
ἀλλὰ τὸ μὲν εἰκός ἐστι πρότασις ἔνδοξος· ὃ γὰρ ὡς
5 ἐπὶ τὸ πολὺ ἴσασιν οὕτω γιγνόμενον ἢ μὴ γιγνό-
μενον ἢ ὂν ἢ μὴ ὄν, τοῦτ' ἐστὶν εἰκός, οἷον τὸ
μισεῖν τοὺς φθονοῦντας ἢ τὸ φιλεῖν τοὺς ἐρωμένους·
σημεῖον δὲ βούλεται εἶναι πρότασις ἀποδεικτικὴ

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[a] 28 a 7.

[b] The argument is: AaC—BeC, ∴ BeA. But this depends upon the validity of the major AaC, which itself needs proof.

[c] *Cf.* 70 a 34 ff. The remark is irrelevant here.

[d] *Cf. Rhet.* II. xxv.

e.g., it must be stated that the science of the knowable and the unknowable is not the same, for these are included in contraries as a universal; and the third figure results, for the term which is assumed as particular, viz. the knowable and unknowable, becomes the middle. It is from the premisses from which it is possible to argue the contrary that we try to infer objections. Hence it is only by these figures that we try to raise them, because in these only are opposite syllogisms possible, since (as we saw [a]) an affirmative result cannot be obtained in the middle figure.

Difficulty of objection by the second figure.

Moreover, an objection by the middle figure would require more argument; *e.g.*, supposing that it were not granted that A applies to B on the ground that C is not a consequent of B. This can be clearly shown by means of further premisses [b]; but an objection ought not to pass on to other considerations, but to display its further premiss immediately. Hence also this is the only figure from which proof by signs [c] is impossible.

We must also consider the other forms of objection, viz. objections from contrary or similar cases, or from received opinion [d]; and whether particular objections can be drawn from the first or negative objections from the second figure.[e]

A probability distinguished from a sign.

XXVII. A probability is not the same as a sign. The former is a generally accepted premiss; for that which people know to happen or not to happen, or to be or not to be, usually in a particular way, is a probability: *e.g.*, that the envious are malevolent or that those who are loved are affectionate. A sign, however, means a demonstrative premiss which is neces-

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[e] This question is, I believe, never discussed.

70 a ἀναγκαῖα ἢ ἔνδοξος· οὗ γὰρ ὄντος ἔστιν ἢ οὗ γενομένου πρότερον ἢ ὕστερον γέγονε τὸ πρᾶγμα, τοῦτο σημεῖόν ἐστι τοῦ γεγονέναι ἢ εἶναι.

Ἐνθύμημα μὲν οὖν ἐστὶ συλλογισμὸς ἐξ εἰκότων ἢ σημείων, λαμβάνεται δὲ τὸ σημεῖον τριχῶς, ὁσαχῶς καὶ τὸ μέσον ἐν τοῖς σχήμασιν· ἢ γὰρ ὡς ἐν τῷ πρώτῳ ἢ ὡς ἐν τῷ μέσῳ ἢ ὡς ἐν τῷ τρίτῳ, οἷον τὸ μὲν δεῖξαι κύουσαν διὰ τὸ γάλα ἔχειν ἐκ τοῦ πρώτου σχήματος· μέσον γὰρ τὸ γάλα ἔχειν. ἐφ' ᾧ τὸ Α κύειν, τὸ Β γάλα ἔχειν, γυνὴ ἐφ' ᾧ Γ. τὸ δ' ὅτι οἱ σοφοὶ σπουδαῖοι, Πιττακὸς γὰρ σπουδαῖος, διὰ τοῦ ἐσχάτου. ἐφ' ᾧ Α τὸ σπουδαῖον, ἐφ' ᾧ Β οἱ σοφοί, ἐφ' ᾧ Γ Πιττακός. ἀληθὲς δὴ καὶ τὸ Α καὶ τὸ Β τοῦ Γ κατηγορῆσαι, πλὴν τὸ μὲν οὐ λέγουσι διὰ τὸ εἰδέναι, τὸ δὲ λαμβάνουσιν. τὸ δὲ κύειν ὅτι ὠχρὰ διὰ τοῦ μέσου σχήματος βούλεται εἶναι· ἐπεὶ γὰρ ἕπεται ταῖς κυούσαις τὸ ὠχρόν, ἀκολουθεῖ δὲ καὶ ταύτῃ, δεδεῖχθαι οἴονται ὅτι κύει. τὸ ὠχρὸν ἐφ' οὗ τὸ Α, τὸ κύειν ἐφ' οὗ Β, γυνὴ ἐφ' οὗ Γ.

Ἐὰν μὲν οὖν ἡ μία λεχθῇ πρότασις, σημεῖον γίγνεται μόνον, ἐὰν δὲ καὶ ἡ ἑτέρα προσληφθῇ, συλλογισμός, οἷον ὅτι Πιττακὸς ἐλευθέριος, οἱ γὰρ φιλότιμοι ἐλευθέριοι, Πιττακὸς δὲ φιλότιμος· ἢ πάλιν ὅτι οἱ σοφοὶ ἀγαθοί, Πιττακὸς γὰρ ἀγαθός, ἀλλὰ καὶ σοφός.

Οὕτω μὲν οὖν γίγνονται συλλογισμοί, πλὴν ὁ μὲν διὰ τοῦ πρώτου σχήματος ἄλυτος, ἂν ἀληθὴς ᾖ (καθόλου γάρ ἐστιν), ὁ δὲ διὰ τοῦ ἐσχάτου λύσιμος,

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[a] If referable to one phenomenon only, a sign has objective necessity; if to more than one, its value is a matter of opinion.

sary or generally accepted.[a] That which coexists with something else, or before or after whose happening something else has happened, is a sign of that something's having happened or being.

Enthymeme. Use of signs in the three figures.

An enthymeme is a syllogism from probabilities or signs ; and a sign can be taken in three ways—in just as many ways as there are of taking the middle term in the several figures : either as in the first figure or as in the second or as in the third. *E.g.*, the proof that a woman is pregnant because she has milk is by the first figure ; for the middle term is 'having milk.' A stands for 'pregnant,' B for 'having milk,' and C for 'woman.' The proof that the wise are good because Pittacus was good is by the third figure. A stands for 'good,' B for 'the wise,' and C for Pittacus. Then it is true to predicate both A and B of C ; only we do not state the latter, because we know it, whereas we formally assume the former. The proof that a woman is pregnant because she is sallow is intended to be by the middle figure ; for since sallowness is a characteristic of women in pregnancy, and is associated with this particular woman, they suppose that she is proved to be pregnant. A stands for 'sallowness,' B for 'being pregnant' and C for 'woman.'

A sign may be regarded as a syllogism with one premiss suppressed.

If only one premiss is stated, we get only a sign ; but if the other premiss is assumed as well, we get a syllogism,[b] *e.g.*, that Pittacus is high-minded, because those who love honour are high-minded, and Pittacus loves honour ; or again that the wise are good, because Pittacus is good and also wise.

Refutability of arguments from signs in the several figures.

In this way syllogisms can be effected ; but whereas a syllogism in the first figure cannot be refuted if it is true, since it is universal, a syllogism in the last

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[b] Strictly an enthymeme.

70 a
κἂν ἀληθὲς ᾖ τὸ συμπέρασμα, διὰ τὸ μὴ εἶναι
καθόλου μηδὲ πρὸς τὸ πρᾶγμα τὸν συλλογισμόν·
οὐ γὰρ εἰ Πιττακὸς σπουδαῖος, διὰ τοῦτο καὶ τοὺς
ἄλλους ἀνάγκη σοφούς. ὁ δὲ διὰ τοῦ μέσου
35 σχήματος ἀεὶ καὶ πάντως λύσιμος· οὐδέποτε γὰρ
γίγνεται συλλογισμὸς οὕτως ἐχόντων τῶν ὅρων·
οὐ γὰρ εἰ ἡ κύουσα ὠχρά, ὠχρὰ δὲ καὶ ἥδε, κύειν
ἀνάγκη ταύτην. ἀληθὲς μὲν οὖν ἐν ἅπασιν ὑπάρξει
τοῖς σημείοις,[1] διαφορὰς δ' ἔχουσι τὰς εἰρημένας.

70 b Ἢ δὴ οὕτω διαιρετέον τὸ σημεῖον, τούτων δὲ
τὸ μέσον τεκμήριον ληπτέον (τὸ γὰρ τεκμήριον τὸ
εἰδέναι ποιοῦν φασιν εἶναι, τοιοῦτο δὲ μάλιστα τὸ
μέσον), ἢ τὰ μὲν ἐκ τῶν ἄκρων σημεῖα λεκτέον
5 τὸ δ' ἐκ τοῦ μέσου τεκμήριον· ἐνδοξότατον γὰρ
καὶ μάλιστα ἀληθὲς τὸ διὰ τοῦ πρώτου σχήματος.

Τὸ δὲ φυσιογνωμονεῖν δυνατόν ἐστιν εἴ τις δίδω-
σιν ἅμα μεταβάλλειν τὸ σῶμα καὶ τὴν ψυχὴν ὅσα
φυσικά ἐστι παθήματα (μαθὼν γὰρ ἴσως μουσικὴν
10 μεταβέβληκέ τι τὴν ψυχήν, ἀλλ' οὐ τῶν φύσει ἡμῖν
ἐστὶ τοῦτο τὸ πάθος, ἀλλ' οἷον ὀργαὶ καὶ ἐπιθυμίαι
τῶν φύσει κινήσεων). εἰ δὴ τοῦτό τε δοθείη καὶ
ἓν ἑνὸς σημεῖον εἶναι, καὶ δυναίμεθα λαμβάνειν τὸ

[1] σημείοις] σχήμασιν C^{2}, Pacius (?), Tricot.

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[a] If the signs of an enthymeme in the first figure are true, the conclusion is inevitable. Aristotle does not mean that the conclusion is universal, but that the universality of the major premiss implies the validity of the minor and conclusion. The example (<all> those who love honour, etc.) quoted for the third figure contains no universal premiss or sign, and fails to establish a universal conclusion.

[b] *i.e.* when both premisses are affirmative.

[c] Signs may be classified as irrefutable (1st figure) and

figure can be refuted even if the conclusion is true, because the syllogism is neither universal nor relevant to our purpose.[a] For if Pittacus is good, it is not necessary for this reason that all other wise men are good. A syllogism in the middle figure is always and in every way refutable, since we never get a syllogism with the terms in this relation [b]; for it does not necessarily follow, if a pregnant woman is sallow, and this woman is sallow, that she is pregnant. Thus truth can be found in all signs, but they differ in the ways which have been described.

Alternative uses of the names 'sign' and 'index.

We must either classify signs in this way, and regard their middle term as an index [c] (for the name 'index' is given to that which causes us to know, and the middle term is especially of this nature), or describe the arguments drawn from the extremes [d] as 'signs,' and that which is drawn from the middle as an 'index.' For the conclusion which is reached through the first figure is most generally accepted and most true.

Use of signs in estimating character by appearance.

It is possible to judge men's character from their physical appearance, if one grants that body and soul change together in all natural affections. (No doubt after a man has learned music his soul has undergone a certain change, but this affection is not one which comes to us naturally; I mean such affections as fits of anger or desires among natural excitements.) Supposing, then, this is granted, and also that there is one sign of one affection, and that we can recognize

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refutable (2nd and 3rd figures), and the name 'index' may be attached to their middle terms, either in all figures or (more probably) only in the first, where the middle is distinctively middle.

[d] Alternatively the name 'sign' may be restricted to the 2nd and 3rd figures, and may be replaced by 'index' in the first.

70 b ἴδιον ἑκάστου γένους πάθος καὶ σημεῖον, δυνησόμεθα φυσιογνωμονεῖν. εἰ γάρ ἐστιν ἰδίᾳ τινὶ γένει ὑπάρχον ἀτόμῳ πάθος, οἷον τοῖς λέουσιν ἀνδρεία, ἀνάγκη καὶ σημεῖον εἶναί τι· συμπάσχειν γὰρ ἀλλήλοις ὑπόκειται. καὶ ἔστω τοῦτο τὸ μεγάλα τὰ ἀκρωτήρια ἔχειν· ὃ καὶ ἄλλοις ὑπάρχειν γένεσι μὴ ὅλοις ἐνδέχεται. τὸ γὰρ σημεῖον οὕτως ἴδιόν ἐστιν, ὅτι ὅλου γένους ἴδιόν ἐστι τὸ πάθος, καὶ οὐ μόνου ἴδιον, ὥσπερ εἰώθαμεν λέγειν. ὑπάρξει δὴ καὶ ἐν ἄλλῳ γένει ταὐτό, καὶ ἔσται ἀνδρεῖος ὁ ἄνθρωπος καὶ ἄλλο τι ζῷον. ἕξει ἄρα τὸ σημεῖον· ἓν γὰρ ἑνὸς ἦν. εἰ τοίνυν ταῦτ᾿ ἐστί, καὶ δυνησόμεθα τοιαῦτα σημεῖα συλλέξαι ἐπὶ τούτων τῶν ζῴων ἃ μόνον ἓν πάθος ἔχει τι ἴδιον, ἕκαστον δ᾿ ἔχει σημεῖον, ἐπείπερ ἓν ἔχειν ἀνάγκη, δυνησόμεθα φυσιογνωμονεῖν. εἰ δὲ δύο ἔχει ἴδια ὅλον τὸ γένος, οἷον ὁ λέων ἀνδρεῖον καὶ μεταδοτικόν, πῶς γνωσόμεθα πότερον ποτέρου σημεῖον τῶν ἰδίᾳ ἀκολουθούντων σημείων; ἢ εἰ ἄλλῳ μὴ ὅλῳ τινὶ ἄμφω, καὶ ἐν οἷς μὴ ὅλοις ἑκάτερον, ὅταν τὸ μὲν ἔχῃ τὸ δὲ μή· εἰ γὰρ ἀνδρεῖος μὲν ἐλευθέριος δὲ μή, ἔχει δὲ τῶν δύο τοδί, δῆλον ὅτι καὶ ἐπὶ τοῦ λέοντος τοῦτο σημεῖον τῆς ἀνδρείας.

Ἔστι δὴ τὸ φυσιογνωμονεῖν τῷ[1] ἐν τῷ πρώτῳ σχήματι τὸ μέσον τῷ μὲν πρώτῳ ἄκρῳ ἀντιστρέφειν, τοῦ δὲ τρίτου ὑπερτείνειν καὶ μὴ ἀντιστρέ-

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[1] τῷ cdm, Waitz: τὸ C: τῶν cet.

the affection and sign proper to each class of creatures, we shall be able to judge character from physical appearance. For if a peculiar affection applies to any individual class, *e.g.*, courage to lions, there must be some corresponding sign of it ; for it has been assumed that body and soul are affected together. Let this be 'having large extremities.' This may apply to other classes, but not as wholes ; for a sign is peculiar in the sense that the affection is peculiar to the class as a whole, and not to it alone, as we are accustomed to use the term. Thus the same affection will be found in another class also, and man or some other animal will be brave. Therefore he will have the sign ; for *ex hypothesi* there is one sign of one affection. If, then, this is so, and we can collate signs of this kind in the case of animals which have only one peculiar affection, and if each affection has a sign, since it necessarily has only one sign, we shall be able to judge their character by their appearance. But if the genus as a whole has two peculiar affections, *e.g.*, if lions have courage and a readiness to share, how shall we decide which sign of those which are peculiarly associated with the genus belongs to which affection ? Probably if both affections are found in some other class not as a whole, that is, when of the classes in which each of them is found certain members possess one but not the other. For if a man is brave but not generous, and exhibits one of the two signs, clearly this will be the sign of courage in the lion as well.

Thus it is possible to judge character from the appearance in the first figure, provided that the middle term is convertible with the first extreme, but is wider in extension than the third term and not

70 b
φειν, οἷον ἀνδρεία τὸ Α, τὰ ἀκρωτήρια μεγάλα ἐφ' οὗ Β, τὸ δὲ Γ λέων. ᾧ δὴ τὸ Γ τὸ Β παντί, ἀλλὰ καὶ ἄλλοις· ᾧ δὲ τὸ Β, τὸ Α παντὶ καὶ οὐ πλείοσιν, ἀλλ' ἀντιστρέφει· εἰ δὲ μή, οὐκ ἔσται ἓν ἑνὸς σημεῖον.

convertible with it : *e.g.*, if A stands for courage, B for large extremities and C for lion. Then B applies to all of that to which C applies, and also to others, whereas A applies to all that to which B applies, and to no more, but is convertible with B. Otherwise there will not be one sign of one affection.

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